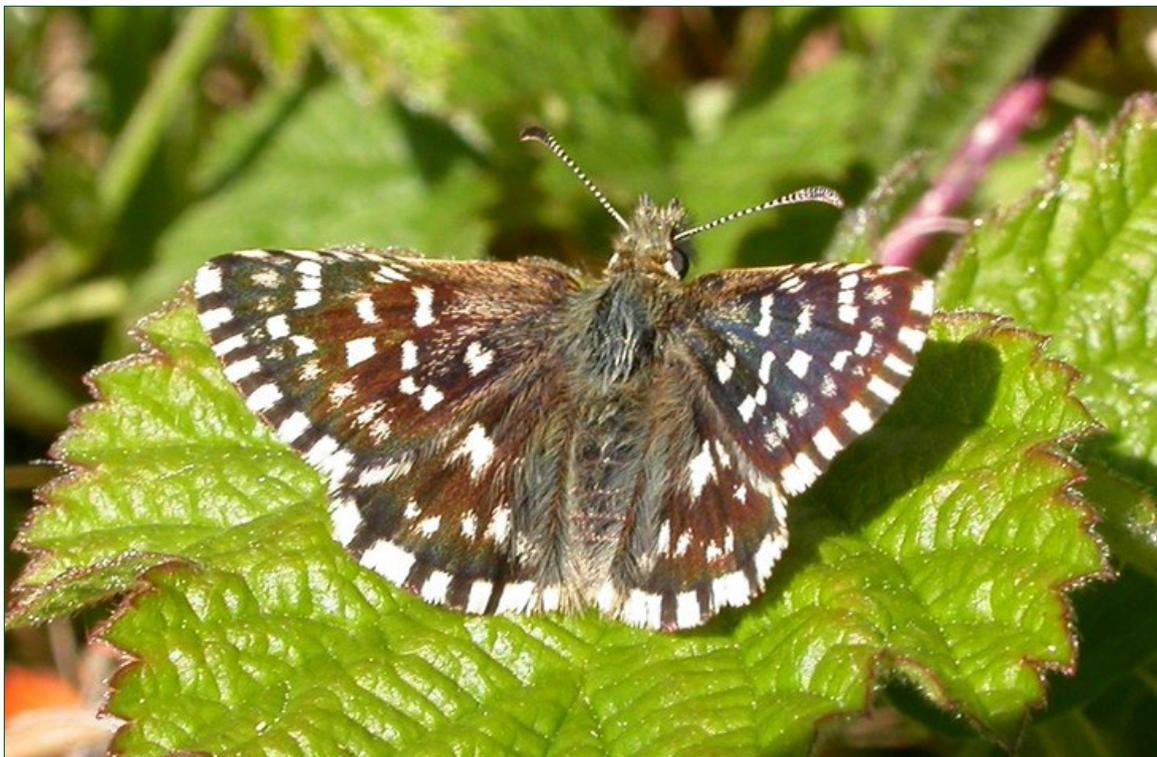


# A survey of Welsh populations of the Grizzled Skipper *Pyrgus malvae* in 2023 and 2024

NRW Evidence Report No. 947

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Grizzled Skipper *Pyrgus malvae* © George Tordoff

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Report series: NRW Evidence Report  
Report number: 947  
Publication date: January 2026  
Contractor: Butterfly Conservation  
Contract Manager: Dr. Mike Howe  
Title: **A Survey of Welsh Populations of the Grizzled Skipper *Pyrgus malvae* in 2023 and 2024**  
Author(s): **C. Williams, G. Tordoff & M. Hipkin**  
Technical Editor: Dr. Mike Howe  
Quality assurance: 2  
Peer Reviewer(s): Justin Hanson  
Approved By: Justin Hanson  
Restrictions: None

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## Recommended citation for this volume:

Williams, C., Tordoff, G. & Hipkin, M. 2026. A survey of Welsh Populations of the Grizzled Skipper *Pyrgus malvae* in 2023 and 2024. NRW Evidence Report No. **947**. 192pp. Butterfly Conservation Wales & Natural Resources Wales, Bangor.

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## Crynodeb gweithredol

Cyhoeddwyd yr asesiad statws diwethaf o'r gwibiwr brith *Pyrgus malvae* yng Nghymru yn 2014. Deng mlynedd yn ddiweddarach, ac yn erbyn cefndir o brinder cynyddol a dirywiad hirdymor parhaus yn y boblogaeth ar lefel y DU, comisiynodd Cyfoeth Naturiol Cymru (CNC) Cadwraeth Gloynnod Byw Cymru i gynnal asesiad statws Cymru gyfan o'r gloyn byw dan fgythiad hwn yn 2023 a 2024. Darparwyd cyllid ychwanegol gan yr Ymddiriedolaeth Cadwraeth Cacwn a Chyngor Bwrdeistref Sirol Wrecsam.

Yn 2023, casglwyd cofnodion y gwibiwr brith (gan ddefnyddio diweddariad 2019 Gloynnod Byw ar gyfer y Mileniwm Newydd) ac aseiniwyd categori i bob poblogaeth yn seiliedig ar y dyddiad a gofnodwyd fwyaf diweddar. Dosbarthwyd naw poblogaeth fel 'cyfredol' – Chwarel Caer-went, CEF Berwyn, Bryngaer Llanmelin, Creigiau a Chwrs Golff Llanymynech, Chwarel Livox, Cwningar Merthyr Mawr, safle'r Weinyddiaeth Amddiffyn yng Nghaer-went, safle'r Weinyddiaeth Amddiffyn ym Mhentywyn, a'r maes tanio arfau awyr ym Mhen-bre a Choedwig Pen-bre. Nodwyd bod 'angen ailrolwg' ar gyfer pedair poblogaeth a bod dwy boblogaeth 'yn ddiflanedig' (Creigiau Eyarth a Phyllau'r Landsger). Dosbarthwyd un boblogaeth fel 'ansicr' (Coedwig Slade), gydag un ar ddeg arall â chofnodion sengl a heb eu dosbarthu fel poblogaethau. Canolbwyntiodd arolwg 2023–24 ar safleoedd sy'n cynnal poblogaethau 'cyfredol', gydag ymweliad â Choedwig Slade. Yn anffodus, ni ellid cael caniatâd mynediad i Chwarel Caer-went a Chwarel Livox yn Sir Fynwy, a Dyffryn Trecwm yn Sir Benfro.

Ym mhob safle, cofnodwyd presenoldeb parhaus a thoreithrwydd y gwibiwr brith, yn ogystal â maint, ansawdd, cysylltedd a dulliau rheoli cynefin, a bygythiadau iddo. Treialwyd dull asesu cyflwr cynefin 'cyflym'; mapiwyd maint y cynefin addas, y cynefin a allai fod yn addas a'r cynefin anaddas yn seiliedig ar nodweddion cynefin allweddol sydd eu hangen ar y glöyn byw. Ar gyfer cynefin addas, rhannwyd cyflwr y cynefin yn dri chategori – da, canolig a gwael – yn seiliedig ar faint a thoreithrwydd prif nodweddion.

Yn ystod yr arolwg cyfredol, **cofnodwyd saith poblogaeth ar draws naw safle**, y mwyafrif o'r rhain ar hyd arfordir y De, gyda nifer fach yn aros ar safleoedd ôl-ddiwydiannol yn y Gogledd-ddwyrain. Mae'r canlyniadau'n tynnu sylw at ddirywiad amlwg dros y deng i ugain mlynedd diwethaf, gyda'r gwibiwr brith wedi'i gofnodi mewn 23 o safleoedd rhwng 2005 a 2013. Roedd y gwibiwr brith yn dal i fod yn bresennol yn y pum safle allweddol a nodwyd yn 2014 (gweler y tabl cryno isod), gyda'r glöyn byw hefyd wedi'i gofnodi dros ardal fwy helaeth yn safle'r Weinyddiaeth Amddiffyn ym Mhentywyn nag o'r blaen. Ni welwyd unrhyw oedolion ar y maes tanio arfau awyr ym Mhen-bre nac ar Greigiau a Chwrs Golff Llanymynech gan Cadwraeth Gloynnod Byw Cymru, er i'r glöyn byw gael ei gofnodi ar yr olaf gan wyfynegwyr a oedd yn ymweld. Mae'n debygol bod y boblogaeth ar Fryngaer Llanmelin yn rhan o fetaboblogaeth ehangach seiliedig ar safle'r Weinyddiaeth Amddiffyn yng Nghaer-went o ystyried agosrwydd y ddau safle. Ni chofnodwyd unrhyw oedolion yng Nghoedwig Slade, a chredir ei bod yn cynnal poblogaeth dros dro oherwydd diffyg achosion diweddar o weld y glöyn byw a chynefin annigonol.

Y cynefinoedd allweddol ym mhob safle yw glaswelltir twyni (3), glaswelltir calchfaen (3), glaswelltir heb ei wella (1), rhodfeydd a llennyrch coetir (1), a glaswelltir niwtral cyfoethog ei rywogaethau wedi'i addasu (1). Y llwyn mefus gwyllt *Fragaria vesca* yw'r prif blanhigyn bwyd i larfâu sy'n bresennol ar bob safle, ac eithrio'r bumhalen ymlusgol *Potentilla reptans* ar CEF Berwyn ac ystad ddiwydiannol ehangach Wrecsam.

**Dosbarthwyd yr holl boblogaethau naill ai fel bach neu fach iawn a, heblaw am safle'r Weinyddiaeth Amddiffyn yng Nghaer-went a Bryngaer Llanmelin, mae'r poblogaethau wedi'u hynysu oddi wrth ei gilydd, gan amlygu dirywiad unwaith eto o'i gymharu â'r asesiad blaenorol. Nid yw'r glöyn byw i'w gael mewn dwysedd uchel (anaml yn fwy na 30 o unigolion) mewn unrhyw safle yng Nghymru.**

Tabl cryno yn dangos safleoedd â phoblogaeth, niferoedd brig oedolion, maint y boblogaeth, ac argaeledd cynefin ar gyfer y gwibiwr brith. \* yn dynodi safleoedd allweddol yn 2014. \*\* yn dynodi bod ystad ddiwydiannol ehangach Wrecsam hefyd yn cynnal poblogaeth fach.

Safle	Niferoedd brig oedolion	Maint y boblogaeth	Cynefin da (ha)	Cynefin canolig (ha)
*Ardal Camau Lliniaru Ecolegol CEF Berwyn**	24 yn 2023	Bach	0.69	2.77
Bryngaer Llanmelin	2 yn 2023	Bach iawn	0.09	0
*Creigiau a Chwrs Golff Llanymynech	1 yn 2023	Bach	2.77	4.66
*Cwningar Merthyr Mawr	8 yn 2024	Bach	40.06	121.67
*Safle'r Weinyddiaeth Amddiffyn yng Nghaer-went	28 yn 2024	Bach	2.83	3.47
Safle'r Weinyddiaeth Amddiffyn ym Mhentywyn	32 yn 2023	Bach	43.13	414.72
*Y maes tanio arfau awyr ym Mhen-bre a Choedwig Pen-bre	12 yn 2023	Bach	25.21	87.62

O'r tua 1,190 hectar o gynefin a aseswyd ar gyfer y gwibiwr brith, canfuwyd bod 1,184 hectar yn cynnal cynefin addas (da/canolig/gwael), ac roedd 114 hectar ohono yn dda, 635 hectar yn ganolig, 50 hectar yn ganolig/gwael, a 384 hectar yn wael. Glaswelltir calchfaen a thwyni yw'r cynefinoedd mwyaf helaeth sy'n cynnal y glöyn byw yng Nghymru, gan gynnwys 85% o'r cynefin mewn cyflwr da a chanolig a aseswyd. Safle'r Weinyddiaeth Amddiffyn ym Mhentywyn sy'n cefnogi'r swm mwyaf o gynefin, gyda 457 hectar, ac yna Cwningar Merthyr Mawr, gyda thua 200 hectar. Mae cynefin mewn cyflwr da, gyda'r holl elfennau allweddol sydd eu hangen ar y gwibiwr brith, yn brin; dim ond 10% o gynefin yn y categori hwn sydd gan rai safleoedd mwy. Fodd bynnag, nid yw planhigion bwyd larfâu yn ffactor cyfyngol ar y rhan fwyaf o safleoedd, gyda digonedd planhigion bwyd wedi'i nodi fel ffactor cyfyngol yn Nghoedwig Slade yn unig. Mae hyn yn awgrymu cyfleoedd sylweddol i gynyddu ansawdd cynefin.

**Y prif achosion dros gynefin is-optimaidd yw gormod o brysgwydd a phorfa wedi gordyfu, gyda'r golled ganlyniadol o gyfoeth blodeuol (ac felly adnoddau neithdar), a chynefin olyniaethol cynnar. Nodwyd diffyg pori, neu bori annigonol, fel y prif ffactor cyfrannol. Dim ond ar un safle y nodwyd gorbori fel ffactor cyfyngol (safle'r Weinyddiaeth**

Amddiffyn yng Nghaer-went). **Mae datblygiad yn fygythiad parhaus i'r gwibiwr brith ar Ystad Ddiwydiannol Wreccsam**, lle mae maint ac ansawdd y cynefin wedi lleihau'n sylweddol ers yr asesiad statws diwethaf.

Mae safleoedd sydd â phoblogaeth ar hyn o bryd yn eiddo i gyrff cyhoeddus a phreifat – awdurdod lleol (1), ymddiriedolaeth natur (1), y Weinyddiaeth Amddiffyn (3), Cyfoeth Naturiol Cymru (2), Cadw (1), preifat (1). Mae pump wedi'u dynodi'n SoDdGAau, o leiaf yn rhannol, ond dim ond pedwar o'r rhain sydd â'r gwibiwr brith fel nodwedd gymhwys. Nid oes gan Ystad Ddiwydiannol Wreccsam na Choedwig Pen-bre ddynodiad ond maent yn cynnal poblogaethau allweddol o'r gwibiwr brith.

Darperir cyfrifon manwl ar gyfer pob un o'r saith poblogaeth gyfredol a gwneir argymhellion er mwyn gwella addasrwydd cynefin, maint y boblogaeth, a chysylltedd cynefin a phoblogaethau ar raddfa'r dirwedd. Argymhellir adfer/creu cynefin newydd i gynyddu hyfywedd y rhwydwaith. Mae codi ymwybyddiaeth o'r gwibiwr brith a'i ofynion yn allweddol, yn ogystal â gwell monitro, arolygon o safleoedd ychwanegol lle nad yw poblogaeth wedi'i chadarnhau, a sicrhau gwarchodaeth safleoedd heb eu dynodi sydd â phoblogaeth. Dylid cynnal asesiadau cynefin ailadroddus i fonitro effaith y cyfundrefnau rheoli a weithredwyd ar gyfer y glöyn byw er mwyn pennu llwyddiant a dysgu gwersi i helpu i wella penderfyniadau rheoli yn y dyfodol. **Mae angen camau rheoli brys er mwyn atal colledion poblogaeth ac adfer statws y gwibiwr brith yng Nghymru.**

**Dylid cynnal arolygon o Chwarel Caer-went, Chwarel Livox a Dyffryn Trecwm ar frys** er mwyn pennu statws presennol y glöyn byw ar y safleoedd hyn.

**Troednodyn:** Wrth baratoi'r adroddiad hwn, cofnodwyd y Gwibiwr Brith ar Dwyni Ogwr yn 2025 yn ystod arolygon ar gyfer y Fritheg Frown *Fabriciana adippe*, gyda thri gwyfyn llawn dwf wedi'u gweld ym Mhant Mari Flanders (SS8776) ar 6 Mai 2025. Dyma'r cofnod cyntaf o ardal Old Castle Down – Twyni Ogwr ers 1998 ac mae'n bosib ei fod yn cynrychioli digwyddiad gwasgaru/cytrefu o Dwyni Merthyr Mawr gerllaw, gyda dim ond Afon Ogwr yn gwahanu'r ddau safle.

## Executive summary

The last status assessment of Grizzled Skipper *Pyrgus malvae* in Wales was published in 2014. Ten years on, and against a backdrop of increasing rarity and continued long-term population decline at a UK level, Natural Resources Wales (NRW) commissioned Butterfly Conservation Wales (BCW) to undertake a repeat Wales-wide status assessment of this Vulnerable butterfly in 2023 and 2024. Additional funding was provided by Bumblebee Conservation Trust and Wrexham County Borough Council.

In 2023, Grizzled Skipper records (using the 2019 Butterflies for the New Millennium update) were collated, and each population assigned a category based on the most recently recorded date. Nine populations were classed as 'Current' – Caerwent Quarry, HMP Berwyn, Llanmelin Hillfort, Llanymynech Golf Rocks & Golf Course, Livox Quarry, Merthyr Mawr Warren, MoD Caerwent, MoD Pendine and Pembrey Aerial Firing Range & Forest - four as 'Requiring re-survey' and two 'Extinct' (Eyarth Rocks and Landsker Ponds). One population was classed as 'Uncertain' (Slade Wood), with a further eleven having singleton records and not classed as populations. The 2023-24 survey focussed on sites supporting 'Current' populations, with a visit to Slade Wood. Unfortunately, access permissions could not be obtained Caerwent Quarry and Livox Quarry in Monmouthshire, and Trecwm Valley in Pembrokeshire.

At each site, the continued presence and abundance of Grizzled Skipper was recorded, as well as habitat extent, quality, connectivity, management and threats. A 'rapid' habitat condition assessment method was trialled; the extent of suitable, potentially suitable and unsuitable habitat was mapped based on key habitat features required by the butterfly. For suitable habitat, habitat condition was split into three categories - Good, Fair and Poor - based on key attribute extent and abundance.

During the current survey **seven populations were recorded across nine sites**, the majority of these being on the south Wales coast with a small number remaining on post-industrial sites in north-east Wales. The results highlight a marked decline over the last ten to twenty years, with Grizzled Skipper recorded from 23 sites between 2005 and 2013. Grizzled Skipper was still present at the five key sites identified in 2014 (see Summary Table below), with the butterfly also recorded over a more extensive area at MoD Pendine than previously. No adults were observed on Pembrey Aerial Firing Range or on Llanymynech Rocks & Golf Course by BCW, although the butterfly was recorded on the latter by visiting lepidopterists. The population on Llanmelin Hillfort is likely to be part of a wider MoD Caerwent metapopulation given the proximity of the two sites. No adults were recorded at Slade Wood which is thought to support a transitory population due to lack of recent sightings and insufficient habitat.

The key habitats at each site are dune grassland (3), limestone grassland (3), unimproved grassland (1), woodland rides and clearings (1) and modified species-rich neutral grassland (1). Wild Strawberry *Fragaria vesca* is the main larval foodplant present on all sites, with the exception of Creeping Cinquefoil *Potentilla reptans* on HMP Berwyn and the wider Wrexham Industrial Estate.

**All populations were classed as either Small or Very Small and, other than MoD Caerwent and Llanmelin Hillfort, the populations are isolated from each other,** again highlighting a decline when compared to the previous assessment. The butterfly does not occur at high density (rarely exceeding 30 individuals) at any Welsh site.

Summary Table showing occupied sites, peak adult counts, population size and habitat availability for Grizzled Skipper. \* indicates key sites in 2014. \*\* indicates that the wider Wrexham Industrial Estate also support a small population.

Site	Peak adult count	Population size	Good habitat (ha)	Fair habitat (ha)
*HMP Berwyn Ecological Mitigation Area**	24 in 2023	Small	0.69	2.77
Llanmelin Hillfort	2 in 2023	Very Small	0.09	0
*Llanymynech Rocks & Golf Course	1 in 2023	Small	2.77	4.66
*Merthyr Mawr Warren	8 in 2024	Small	40.06	121.67
*MoD Caerwent	28 in 2024	Small	2.83	3.47
MoD Pendine	32 in 2023	Small	43.13	414.72
*Pembrey Aerial Firing Range & Forest	12 in 2023	Small	25.21	87.62

**Of the c.1190 ha of habitat assessed for Grizzled Skipper,** 1184 ha was found to support suitable habitat (Good/Fair/Poor), of which **114 ha was Good**, 635 ha was Fair, 50h a was Fair/Poor and 384 ha was Poor. Limestone grassland and dune are the most extensive habitats supporting the butterfly in Wales, comprising 85% of Good and Fair condition habitat assessed. MoD Pendine supports the largest amount with 457 ha, followed by Merthyr Mawr Warren with c.200 ha. Good condition habitat, with all key elements needed by Grizzled Skipper, is infrequent; some larger sites have only 10% of habitat in this category. However, larval foodplants are not a limiting factor on most sites, with foodplant abundance only identified as limiting at Slade Wood. This suggests significant opportunities to increase habitat quality.

**The main causes of sub-optimal habitat are too much scrub and rank swards, with the resultant loss of floristic richness (and therefore nectar resources) and early successional habitat.** Lack of, or insufficient grazing, was identified as the principal contributing factor. Overgrazing was only identified as a limiting factor on one site (MoD Caerwent). **Development is a continuing threat to Grizzled Skipper on Wrexham Industrial Estate** where habitat extent and quality have substantially reduced since the last status assessment.

Currently-occupied sites are owned by public and private bodies – Local Authority (1), Wildlife Trust (1), MoD (3), NRW (2), Cadw (1), private (1). Five are designated as SSSIs, at least in part, but only four of these have Grizzled Skipper as a qualifying feature. Wrexham Industrial Estate and Pembrey Forest have no designation but support key Grizzled Skipper populations.

Detailed accounts are provided for all seven current populations and recommendations are made to improve habitat suitability, population size, and habitat and population connectivity at the landscape scale. It is recommended that new habitat is restored/created to increase the network viability. Raising awareness of Grizzled Skipper and its requirements is key,

as is better monitoring, surveys of additional sites where occupation is unconfirmed and securing the protection of undesignated occupied sites. Repeat habitat assessments to monitor the impact of management regimes implemented for the butterfly should be undertaken to determine success and learn lessons to help improve future management decisions. **Urgent management action is required to arrest population losses and restore the status of Grizzled Skipper in Wales.**

**Surveys of Caerwent Quarry, Livox Quarry and Trecwm Valley should be undertaken as a matter of urgency** to determine the current status of the butterfly on these sites.

**Footnote:** During the preparation of this report, Grizzled Skipper was recorded on Ogmore Down in 2025 during surveys for High Brown Fritillary *Fabriciana adippe*, with three adults seen at Pant Mari Flanders (SS8776) on 6<sup>th</sup> May 2025. This is the first record from the Old Castle Down – Ogmore Down area since 1998 and may represent a dispersal/colonisation event from the nearby Merthyr Mawr Warren, separated only by Afon Ogwr (River Ogmore).

# 1. Introduction

## 1.1 Grizzled Skipper ecology & status

Skippers belong to the family HesperIIDae, a group of butterflies that are small with stout bodies, wide heads and are noted for their short rapid bursts of speed, hence the name. The Grizzled Skipper *Pyrgus malvae* (Linnaeus, 1758) is one of the smallest skippers found in the UK (wingspan 27mm) and has a moth-like appearance with a chequerboard pattern. It is generally single-brooded flying from the end of April until mid-June (UKBMS, 2025a). In warm springs, this may be as early as mid-March and in late years it can fly until late July. Its life cycle is summarised in Figure 1.



Figure 1. The life cycle of Grizzled Skipper © Butterfly Conservation

Males are territorial, undertaking both perching and patrolling behaviour, whilst females are less conspicuous apart from when egg-laying, although both sexes are active throughout the day feeding and basking. A wide variety of plant species are used as nectar sources including Common Bird's-foot-trefoil *Lotus corniculatus*, Bugle *Ajuga reptans*, buttercups *Ranunculus* spp., Daisy *Bellis perennis*, Common Dog Violet *Viola riviniana*, Ground Ivy *Glechoma hederacea*, Common Milkwort *Polygala vulgaris*, Wild Thyme *Thymus drucei* and Wild Strawberry *Fragaria vesca*. Adults usually roost in tall ungrazed and/or uncut vegetation on the dead flowering spikes of species such as Wild Marjoram *Origanum vulgare*, Black Knapweed *Centaurea nigra* and Perforate St John's-wort *Hypericum perforatum* (Brereton, 1997).

Eggs are laid singly on downy species of the Rosaceae family which are larval foodplants. The principal species used are Wild Strawberry, Creeping Cinquefoil *Potentilla reptans* and Agrimony *Agrimonia eupatoria*. In southern England, Barren Strawberry *Potentilla sterilis* and Tormentil *Potentilla erecta* are equally preferred. Other species used include Salad Burnet *Sanguisorba minor*, Bramble *Rubus fruticosus* agg., Dog Rose *Rosa canina* and Wood Avens *Geum urbanum*. The majority of eggs are laid on plants which grow over bare ground or in short vegetation (<10cm) and therefore located in a favourable warm microclimate. The larval stage can last two to three months, during which the larvae live in tents formed by spinning together the edges of leaves, leaving them periodically to feed. As the larvae develop, their mobility increases and they often become less specific in their use of foodplant and micro-habitats. More nutritionally rich plants growing in rank vegetation (10-50cm), e.g. Bramble, are widely used by larger larvae when available.

Larvae move away from their final foodplant shelter to spin a pupa in low vegetation (less than 30cm) in which they overwinter.

Grizzled Skipper is a relatively sedentary species which typically live in self-contained colonies seldom comprising more than 100 individuals at peak. Population structure is influenced by factors including the size and quality of habitat patches and the structure of bordering vegetation. In optimal habitats with high foodplant density, colony boundaries tend to be well defined whereas populations in small or suboptimal habitats with only minor barriers to dispersal tend to have a more open structure and are more closely linked to other nearby patches. The Grizzled Skipper is capable of crossing stands of 100m wide mature woodland, but habitats such as woodland and improved grassland form barriers to dispersal for the majority of individuals. Mark-Release-Recapture data suggests that separate colonies probably exist where they are separated by 100m of woodland, dense scrub or improved grassland, or 500m of unoccupied unimproved grassland or scattered scrub. Data from limited mobility studies show 90% of movements being less than 300m and a maximum of 1.5km observed on just one occasion, with a mean range for males of 50m to 149m and 36m to 103m for females (Brereton, 1997).

In the UK, the Grizzled Skipper is found in a variety of habitats including grassland, woodland rides, glades and clearings, brownfields, heathland and coastal dunes. In these habitats, it requires plentiful spring nectar plants, larval foodplants growing in short vegetation (<10cm) usually with patches of bare ground, and patches of taller vegetation (10-15cm) with some scrub or woodland edges (Asher *et al.*, 2001; Butterfly Conservation, 2010; Brereton, 1997).

The State of the UK's Butterflies 2022 (Fox *et al.*, 2023) report highlights that the Grizzled Skipper has declined significantly, at a UK level, in both distribution (-48%) and abundance (-49%) over the period 1976 – 2019. Change in both distribution and abundance has slowed over the most recent 10-year change period (-13% 2009 – 2019). There is currently no trend data for Wales due to insufficient monitoring data (only four monitored sites between 2019-2021 and not all sites produce a yearly index due to gaps in flight period coverage). The butterfly has recently been reconfirmed as Vulnerable in Great Britain (Fox *et al.*, 2022).

## 1.2 Grizzled Skipper distribution

The Grizzled Skipper is widespread in Europe although absent from the Iberian Peninsula and Italy where it is replaced by Southern Grizzled Skipper *Pyrgus malvoides* (Haahtela *et al.*, 2011; LepiDiv Projekt) (Figure 2). Its range extends eastwards to China and Korea (Asher *et al.*, 2001). Although it is declining in many European countries (Asher *et al.*, 2001), it is classed as Least Concern in Europe (van Swaay *et al.*, 2010). It is found in dry meadows and rocky slopes, forest edges and clearings up to 2000 metres and peat bogs (Haahtela *et al.*, 2011).

Grizzled Skipper is scarce in the UK, occurring mostly in southern England and the Midlands. The main strongholds are in Dorset, Hampshire, Somerset and Wiltshire but it

has been lost from outlying areas such as Yorkshire and the northeast of England (Fox, 2023). In Wales, the butterfly is restricted to the south coast and post-industrial sites in the north-east with only a small number of sites remaining (**Error! Reference source not found.**).

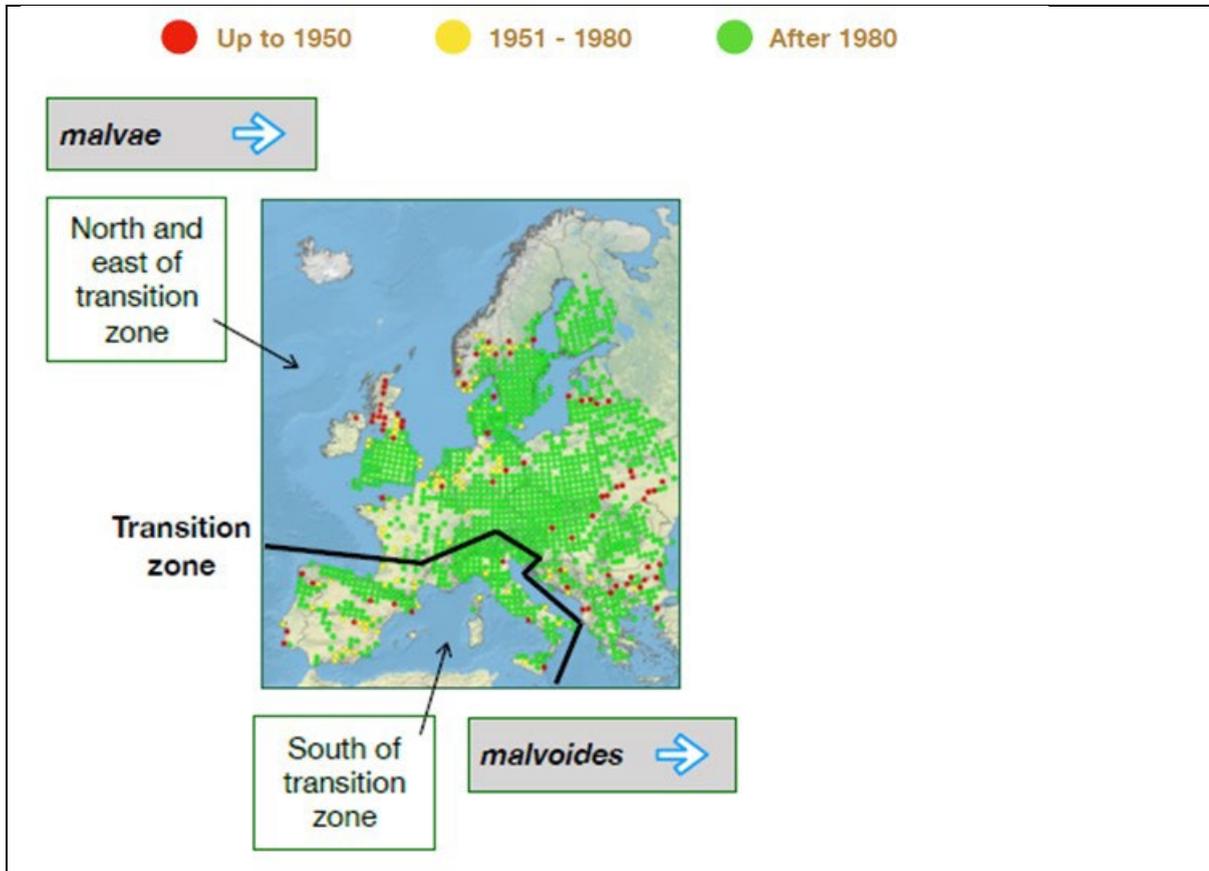


Figure 2. European distribution of Grizzled Skipper showing replacement by Southern Grizzled Skipper in the south-west. © LepiDiv Projekt.

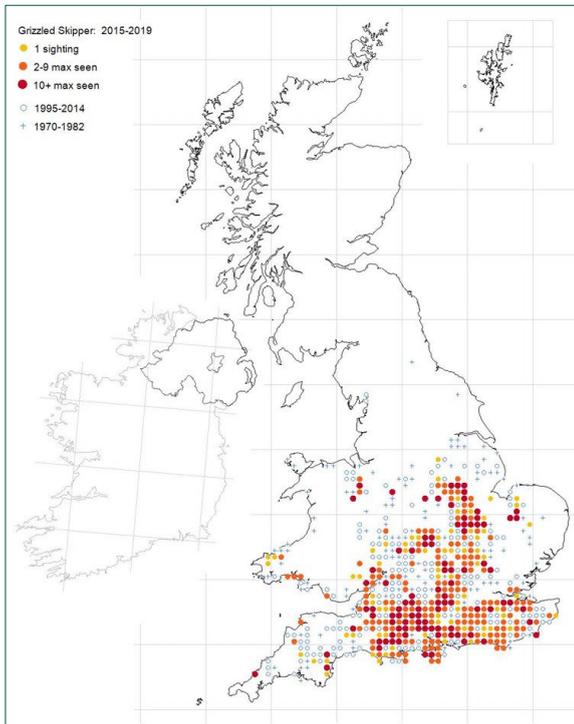


Figure 3. UK distribution map for Grizzled Skipper. © Butterfly Conservation

## 1.3 Wales Status Assessment

Butterfly Conservation Wales initiated work on Grizzled Skipper in 2011 following the publication of the *2010 Atlas of Butterflies in Britain and Ireland* (Fox & Asher, 2010) which highlighted the scarcity of the species in Wales. Grizzled Skipper has never been widespread in Wales but had become very rare and mostly associated with coastal and limestone grasslands, sand dunes and post-industrial land. Records indicated that there were fewer than 20 extant colonies in Wales (2005-2010 records), but little was known about the size of these colonies or the conservation measures required to ensure colony maintenance and, where possible, expansion.

Existing species records were obtained and during 2011-2013, field surveys were undertaken to gather the information required for the production of a Sites Dossier for Wales (Tordoff & Williams, 2014a). This included information about continued species presence, population size, key areas, habitats used, factors limiting populations and current and potential threats. The data contained in the Sites Dossier were summarised to enable the production of a status assessment for the butterfly in Wales (Tordoff & Williams, 2014b).

Between 2005 and 2013, the butterfly was recorded from 23 sites with concentrations in north-east Wales, Gwent, Carmarthenshire and Pembrokeshire. Although monitoring data were lacking, the butterfly did not appear to occur at a high density (i.e. large populations) on any Welsh sites with most populations being small to medium in size. In Wales, Grizzled Skipper population size is defined as: **Very Small**: <5 adults (at peak); **Small**: 5-50 adults; **Medium**: 51-100 adults; **Large**: 100+ adults. Note that these thresholds are

lower than those in the UK Species Action Plan (Brereton *et al.*, 1998) due to the need to differentiate the generally small populations in Wales. Medium populations occurred at Wrexham Industrial Estate and Merthyr Mawr Warren, and Small-Medium populations were found at Llanymynech Rocks, Pembrey Forest & Dunes and MoD Caerwent. These five sites were considered to be the key sites for the butterfly in Wales. Small or Very Small resident populations were present at six sites: Pembrey Aerial Firing Range, Heathfield Quarry, Eyarth Rocks, Loggerheads Country Park, Cefn Mawr Quarry and Landsker Ponds. The status of the butterfly at several sites was unclear, with some records likely to represent single dispersing adults rather than established breeding colonies e.g. Borrass Quarry and Marford Quarry, whilst small populations at Eyarth Rocks, Loggerheads and Cefn Mawr Quarry had been lost. An assessment of two sites was not possible due to access constraints and at the remaining ten sites the status of the population was uncertain with only singletons having been recorded from the site.

Over half the sites supporting Grizzled Skipper were situated on disused artificial substrates (spoil tips, quarry waste and derelict industrial sites). The remaining sites comprised unimproved grasslands, sand dunes and woodland rides and clearings. Wild Strawberry was found to be the main foodplant present on most of the sites.

Of the five SSSIs with Grizzled Skipper as a SSSI Qualifying feature, populations survive on just three – Dinham Meadows SSSI, Llanymynech and Llyncllys Hills SSSI and Merthyr Mawr SSSI - with the species no longer present at Craig Adwy-wynt a Choed Eyarth House a Chil-y-groeslwyd SSSI and Alyn Valley Woods and Alyn Gorge Caves SSSI. At Dinham Meadows, the bulk of the population lies outside the SSSI (Hipkin, 2025).

The main factors identified as potentially limiting populations were grassland swards being too short, lack of bare ground and excessive scrub growth. The main threats were perceived to be lack of management (i.e. natural succession) on some sites and overgrazing on others. Most of the sites occurred on post-industrial land and are thus highly susceptible to development. Recommendations of the report were:

- better monitoring of populations at key sites;
- surveillance surveys at other established colonies;
- further surveys at sites with limited access to establish population size;
- adequate mitigation in the event of development to prevent further fragmentation and the possible loss of colonies;
- implementation of appropriate management at key sites and other sites with established populations.

## 1.4 The need for an updated Status Assessment

With ten years having passed since the 2014 status assessment, in 2023 Natural Resources Wales commissioned a survey of Welsh populations of Grizzled Skipper with the aim of providing the data required to underpin conservation action for the butterfly. As such, 'Current' populations were the survey focus; further information is provided in the Methods section. Grizzled Skipper records were collated and each population of the butterfly assigned to a category based on the most recently recorded date. Population

status categories are shown in Table 1. The most recent *Butterflies for the New Millennium* (BNM) dataset for Grizzled Skipper was last updated in 2019 (Brereton *et al.*, 2020); 2019 was therefore used to calibrate the status categories.

**Table 1. Population status assessment categories used for Grizzled Skipper in Wales.**

Status category	Description
<b>Occupied / Current Population (2015-2019)</b>	A known Grizzled Skipper population with suitable habitat where one or more adults have recorded in the most recent 5-year period (2015-2019).
<b>Resurvey Required (1990-2014)</b>	A site known to have supported a Grizzled Skipper population and which still supports suitable habitat, but no adults were recorded in the most recent 5-year period (2015-2019). However, limited/no surveys have been undertaken during this period.
<b>Unoccupied (1990-2014)</b>	A site known to have supported a Grizzled Skipper population and which still supports suitable habitat, but no adults were recorded in the most recent 5-year period (2015-2019) despite survey effort.
<b>Extinct (last record 1990-2014)</b>	A site known to have no records of Grizzled Skipper for over five years despite searches and there is a known loss/deterioration of habitat.
<b>Extinct pre-1990</b>	No known records since pre-1990.
<b>Status Uncertain</b>	A site where Grizzled Skipper has been recorded but only as singletons therefore not considered to have a breeding population based on current records.

Nine populations were classed as Current, four as requiring Resurvey and two Extinct. A further population (Slade Wood) was classed as Uncertain. A list of these populations is provided in Table 2 below and their locations (including component sites) are shown in Figure 4. It should be noted that there were a further ten sites with singleton records, but these are not classed as populations.

**Table 2. Welsh Grizzled Skipper populations and their assigned status at the start of the 2023 surveys.**

Population	Vice county	Status	Notes
Wrexham Industrial Estate	Denbighshire	Current	Note – currently classed as one population but likely multiple across the Estate – more data required.
Eyarth Rocks	Denbighshire	Extinct	Last recorded 2011.
Loggerheads CP - Top Glade (& Cliffs - Denbighshire)/ Cefn Mawr Quarry, Cadole	Flintshire	Resurvey Required (Cefn Mawr Unoccupied)	Last recorded 2012.
Llanymynech Rocks & Llanymynech Golf Course	Montgomeryshire	Current	One population spread over two sites.
MoD Pendine	Carmarthenshire	Current	Previously known as a smaller 'Ginst Point' population.

Population	Vice county	Status	Notes
Pembrey Forest & Dunes / Pembrey Aerial Firing Range	Carmarthenshire	Current	-
Merthyr Mawr Warren	Glamorgan	Current	-
MoD Caerwent	Monmouthshire	Current	-
Caerwent Quarry	Monmouthshire	Current	-
Livox Quarry, St Arvens	Monmouthshire	Current	-
Llanmelin Hillfort	Monmouthshire	Current	-
Blaenserchan	Monmouthshire	Resurvey Required	Last recorded 2012.
Slade Wood	Monmouthshire	Uncertain	Likely insufficient breeding habitat to maintain permanent population.
Heathfield Quarry	Pembrokeshire	Resurvey Required	Last recorded 2015.
Trecwm Valley /Cwm Ffrwd	Pembrokeshire	Resurvey Required	Last recorded 2014.
Landsker Ponds	Pembrokeshire	Extinct	Last recorded 2013 – no habitat remaining.

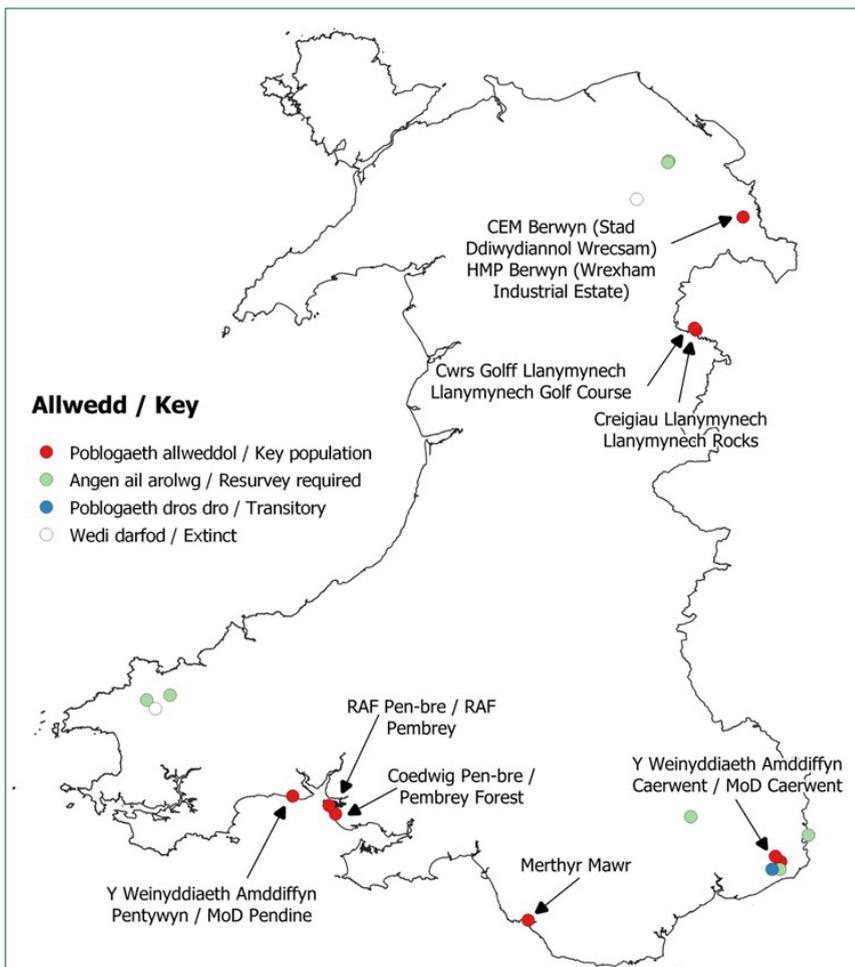


Figure 4. Welsh Grizzled Skipper sites based on BNM records to 2019.

Recent surveys of Grizzled Skipper commissioned by Natural Resources Wales have been undertaken on MoD Caerwent (Hipkin, 2025) and the wider Wrexham Industrial Estate

outside HMP Berwyn Ecological Mitigation Area (Davis & Moore, 2025). The results of the former are included in this report (see Section 8.10). In May to June 2024, 11 adults were recorded at five sites on Wrexham Industrial Estate (1 each on Sites 4, 13, 16 & 19, 7 on Site 7). It was concluded that suitable Grizzled Skipper habitat is still found widely across the Estate, but that it is decreasing in area and quality and becoming more fragmented owing to a range of threats including habitat loss to development, scrub encroachment and inappropriate tree planting.

## 2. Methods

### 2.1 Site selection

A survey of sites listed in Table 3 was undertaken by Butterfly Conservation under the NRW survey contract. Sites are defined by ownership as opposed to populations which are defined on an ecological basis. Sites selected for survey were those with records for the most recent 5-year period, this being 2015-2019 based on record availability from Butterfly Conservation's National Recording Scheme, *Butterflies of the New Millennium* (BNM). It should be noted that, for cross-border sites, only land in Wales was surveyed. It should also be noted that sites supporting Grizzled Skipper in Carmarthenshire (VC44) - namely Pembrey Forest and surrounding dunes and MoD Pendine & Laugharne Pendine Burrows - were surveyed under Butterfly Conservation's contract with Bumblebee Conservation Trust as part of its Nature Networks 2 project (Table 4). The HMP Berwyn Ecological Mitigation Area was also surveyed under a separate contract with Wrexham Country Borough Council (Table ). As such, the current contract enables a comprehensive assessment of the current status of Grizzled Skipper at its key sites in Wales.

Table 3. Welsh sites supporting Grizzled Skipper scheduled for survey in 2023 and 2024 by Butterfly Conservation under the NRW contract. Sites marked \* are part of the Caerwent population.

Site	Vice county	Grid reference
MoD Caerwent*	35	ST474913
Caerwent Quarry*	35	ST472894
Livox Quarry, St. Arvens*	35	ST542975
Llanmelin Hillfort*	35	ST460926
Slade Wood*	35	ST453893
Merthyr Mawr Warren	41	SS8676
Trecwm Valley/Cwm Ffrwd	45	SM990325
Llanymynech Rocks	47	SJ267218
Llanymynech Golf Course	47	SJ263223

Table 4. Welsh sites supporting Grizzled Skipper scheduled for survey in 2023/2024 by Butterfly Conservation under the BBCT contract.

Site	Vice county	Grid reference
MoD Pendine	VC44	SN280073
Pembrey Forest / Country Park	VC44	SN385029
Pembrey Aerial Firing Range	VC44	SN369050

Table 5. Welsh sites supporting Grizzled Skipper scheduled for survey in 2023/2024 by Butterfly Conservation under contract to Wrexham County Borough Council.

Site	Vice county	Grid reference
HMP Berwyn	50	SJ382496

## 2.2 Survey methodology

Surveys were mostly undertaken between May and June 2023 to determine the presence of Grizzled Skipper, the size of the population, current habitat conditions and management along with any threats to the butterfly. Additional visits to HMP Berwyn, MoD Caerwent and Pembrey Forest were made from April to June 2024. On each site, the survey included:

- A site walkover during the flight period. This was to identify key areas used by the butterfly and gauge population size;
- Mapping of the extent of suitable habitat currently available and areas that could potentially become suitable following sympathetic management. On large sites, this was an estimate of the habitat present;
- An assessment of habitat quality. This estimated the amount of larval foodplants growing in suitable microhabitat conditions, considering sward height, bare ground, nectar, scattered scrub and connectivity;
- An assessment of current management regimes and threats to the butterfly population. Recommendations of management improvement are made.

For each site a 'Grizzled Skipper Survey Form' was completed to provide a useful overview in terms of the presence of key features required by the butterfly, including strengths and limiting factors, along with management information and a threat assessment. The blank survey form template is provided in Appendix 1 along with the supporting notes.

A 'rapid' habitat condition assessment method, suitable for mapping at a landscape scale, was developed to trial for the Wales 2023 Grizzled Skipper surveys. This involved mapping the extent of suitable, potentially suitable and unsuitable habitat on a site based on key habitat features required by the butterfly. These are:

- Foodplants (Wild Strawberry, Barren Strawberry, Creeping Cinquefoil, Tormentil, Agrimony. Dewberry (*Rubus caesius*) is used on some sites. Bramble is used by later larval stages;
- Mosaic of -

- short herb-rich vegetation (<10cm), often with stone, rocks or bare ground;
- Taller vegetation (10-50cm), including dead flowering spikes for shelter, basking and roosting;
- Abundant spring nectar (Daisy, Bugle, Bulbous Buttercup and Common Bird's-foot-trefoil);
- Low scrub (<4m) – for mate location, shelter and as foodplant habitat.

For suitable habitat, habitat condition was split into three categories: Good, Fair and Poor based on the extent and abundance of the key habitat attributes.

The methodology is detailed in Appendix 2.

## 3. Results

### 3.1 Current Status & distribution

Of the 13 sites proposed for survey during the 2023-24 period, ten sites were surveyed and three excluded due to lack of access. The ten sites included all of the five key sites from the 2014 status report, although it should be noted that only HMP Berwyn of the Wrexham Industrial Estate sites was surveyed as part of this contract. Of the six sites considered to support Small or Very Small populations in 2014, only Pembrey Aerial Firing Range was surveyed. Heathfield Quarry was excluded due to insufficient resources and extinction was considered to have occurred/likely occurred at the remaining four sites. The four remaining sites surveyed were Llanmelin Hillfort, Slade Wood, Llanymynech Golf Course (previously considered as one Llanymynech site in 2014) and MoD Pendine (only the easternmost 'Ginst Point' area surveyed in 2014).

Grizzled Skipper continued to be present at the five key sites, with the butterfly also now recorded at MoD Pendine over a much more extensive area than previously known. The butterfly was also present at Llanymynech Golf Course and Llanmelin Hillfort, with Slade Wood considered to support a transitory population due to lack of recent sightings and insufficient habitat.

On the basis of the current surveys, seven Grizzled Skipper populations (as opposed to sites) can be confirmed in Wales in five vice counties (see Table 6 below).

Table 6. Confirmed Grizzled Skipper populations on the basis of the 2023-24 surveys.

Population	Vice county	Status assessment 2014	Status assessment 2024	Comments
Wrexham Industrial Estate	50	Current	Current	Last recorded 2024
Llanymynech Rocks & Llanymynech Golf Course	47	Current	Current	Last recorded 2024
Pembrey Forest & Dunes & Pembrey Aerial Firing Range	44	Current	Current	Last recorded 2024

Population	Vice county	Status assessment 2014	Status assessment 2024	Comments
MoD Pendine	44	Unknown	Current	Last recorded 2024
Merthyr Mawr Warren	41	Current	Current	Last recorded 2024
MoD Caerwent	35	Current	Current	Last recorded 2024
Llanmelin Hillfort	35	Current	Current	Last recorded 2024

There are a further six populations which require resurvey to determine whether the butterfly is still present and, if so, its population size. These populations are listed in Table 7 below. It is considered that Trecwm Valley is very likely to still support a population of the butterfly and is a priority for survey. The Loggerheads/Cefn Mawr Quarry population, on the other hand, is considered likely to be extinct but it would be worth visiting the quarry area again as a precaution.

Table 7. Former Grizzled Skipper populations requiring resurvey.

Population	Vice county	Status assessment 2014	Status assessment 2024	Comments
Loggerheads CP - Top Glade (& Cliffs - Denbighshire)/Cefn Mawr Quarry	50	Current	Resurvey required (likely extinct)	Last recorded 2014. Likely extinct due to lack of suitable habitat.
Caerwent Quarry	35	Status uncertain	Status uncertain (resurvey required)	Last recorded 2019 (4 and 6 individuals), 2018 (3).
Livox Quarry, St Arens	35	Not known during 2012 surveys.	Status uncertain (resurvey required)	Last recorded 2017 (2 individuals), 2016 (3), 2015 (2 & 1), 2014 (1 – first record for site).
Blaenserchan	35	Status uncertain	Status Uncertain (resurvey required)	Last recorded 2011 – 2 adults are first and only records for site.
Heathfield Quarry	45	Current	Resurvey required	Last recorded 2015 (1). First recorded in 2007 (3 on different dates). Also recorded in 2011 (4 adults) and 2013 (1 adult). 2014 & 2015 - 1 adult
Trecwm Valley /Cwm Ffrwd	45	Unknown	Resurvey required	Last recorded in 2014.

The Eyarth Rocks and Landsker populations are now considered to be extinct (Table 8).

Table 8. Grizzled Skipper populations considered extinct.

Population	Vice county	Status assessment 2014	Status assessment 2024	Comments
Eyarth Rocks	50	Current	Extinct	Last recorded 2011. Prior to this recorded annually between 1986 and 2000. Breeding habitat present on site but no known nearby population for colonisation to take place from.
Landsker Ponds	45	Current	Extinct	No records since 2013 and no habitat remaining (lack of management). Nearest population Heathfield Quarry – status unknown.

Although the butterfly has been recorded at Slade Wood, it is considered to be a transitory population (as opposed to a breeding one) (Table 9).

Table 9. Sites considered to only support transitory Grizzled Skipper populations.

Population	Status assessment 2014	Status assessment 2024	2024 population size
Slade Wood	Status uncertain	Transitory - insufficient habitat	Last recorded 2019 (singleton). Likely insufficient breeding habitat to maintain permanent population.

There are a further eleven sites where only singletons have been recorded and the status of the butterfly at the site is therefore unknown (Table 10). Visits to these sites would be useful determine whether sufficient breeding habitat is present and, if so, surveys during the adult flight period undertaken.

Table 10. Sites where Grizzled Skipper singletons have been recorded.

Population	Vice county	Status assessment 2014	Status assessment 2024	Comments
Borras Quarry	50	Status uncertain	Status Uncertain (possible wanderer)	Only singletons recorded. 2012 most recent record despite more recent surveys. Most likely a wanderer from Wrexham Industrial Estate and habitat reported unsuitable for Grizzled Skipper by NRW. However, appear to be two records in Aderyn for two adjacent grid squares - SJ3552 (2) and SJ3652 (1) and between 2014-2019 - need to obtain actual records.
Marford Quarry	50	Status uncertain	Status Uncertain (possible wanderer)	Only singletons recorded. Last recorded 2017 despite on-site transect. Breeding habitat present on site.
Mynydd y Garreg	41	n/a	Status Uncertain (singletons)	Singleton in 2014 only.

Population	Vice county	Status assessment 2014	Status assessment 2024	Comments
Cynheidre	41	Status uncertain	Status Uncertain (singletons)	Last recorded 2008 - only singletons recorded.
North Dock, Llanelli	44	Status uncertain	Status Uncertain (singletons)	Last recorded 2008 - only singletons recorded.
Oxwich	41	Status uncertain	Status Uncertain (misidentification resurvey required)	Misidentification - transect records now considered to be Mother Shipton. Only one reliable confirmed record from 1997. Aderyn records for Oxwich and Nicolaston area after 2008 (last UKBMS misidentification records) - would benefit from further review.
Llandogo	35	Status uncertain	Status Uncertain (singletons)	Singleton in 2009 only.
Usk, Cefn Ila	35	Status uncertain	Status Uncertain (singletons)	Singleton in 2015 only.
Blackridge, Milford Haven	45	Status uncertain	Status Uncertain (singletons)	Last recorded 2010 - only singletons recorded to date.
Craig Iwydd	45	Status uncertain	Status Uncertain (singletons)	Singleton in 2019 only. Likely wander from Trecwm but approx. 1km. Need visit to check suitability of habitat at record location.
Fishguard Bay Hillside	45	Status uncertain	Status Uncertain (singletons)	1 adult in 2019 - approx 3.2km SE of Landsker Ponds (now extinct).

## 3.2 Current abundance

In the 2014 status assessment, adequate monitoring data were only available for a few sites, and in most cases population sizes were estimated from the results of just a few surveys. This was considered sufficient to identify those sites which constituted the strongest populations. Of the seven populations with presence confirmed in the 2023-24 surveys, four have monitoring established in the form of a transect or, in the case of Pembrey Forest, timed counts. There are also timed count data for some of the other mitigation sites on Wrexham Industrial Estate, but these are small and only likely to support small populations at most. Currently, none of the monitoring generates robust data for Grizzled Skipper due to insufficient counts covering the flight period or monitoring only having been established recently. It is, therefore, not possible to gain an accurate indication of the population size at each site or to generate a trend at either a site or Wales level. It is hoped that this issue can be addressed with targeted support to volunteers currently involved or interested in becoming involved in monitoring. Based on recent survey and monitoring data, Grizzled Skipper still does not appear to occur at a high density at any Welsh site, with the largest populations being those where the butterfly is spread over a large area at a low density, notably at MoD Pendine, Merthyr Mawr Warren and MoD Caerwent (Table 11).

Table 11. Population size art Welsh sites.

Population	Vice county	Likely population size 2014	Likely population size 2024	Comments
Wrexham Industrial Estate (HMP Berwyn)	50	Medium	Small	Post prison construction – highest count 24 (single visit) in 2018. Transect – peak count 19 in 2023.
Llanymynech Rocks & Llanymynech Golf Course	47	Small-Medium	Small	Rarely reaches double figures in recent years.
Pembrey Forest & Dunes & Pembrey Aerial Firing Range	44	Small-Medium	Small	No more than 14 individuals recorded since 2014 (BNM) and less than 10 recorded on timed counts in recent years.
MoD Pendine	44	Unknown	Small	27/05/24 - 13. 29/05/24 – 19.
Merthyr Mawr Warren	41	Medium	Small	Highest count 61 on 22/05/12. Highest transect count – 2018 (annual total 28; peak 7).
MoD Caerwent	35	Small-Medium	Small	Highest count on single visit 35 (2018).
Llanmelin Hillfort	35	Status Uncertain	Very Small	Highest count 5 in 2016.

### 3.3 Habitat extent & quality

Habitat extent and quality was not assessed during the 2014 status assessment. In terms of habitat type, over half the sites were situated on disused artificial substrates (spoil tips, quarry waste and derelict industrial sites). The remaining sites comprised unimproved grasslands, sand dunes, and woodland rides and clearings. Wild Strawberry was the main foodplant present on most of the sites.

Of the nine sites confirmed as supporting seven Grizzled Skipper populations in 2023-24, three are limestone grassland and dune, three limestone grassland, one unimproved grassland, one woodland rides and clearings and one modified species-rich neutral grassland. **Wild Strawberry is the main larval foodplant present on all sites with the exception of Creeping Cinquefoil on Wrexham Industrial Estate.**

The 2023-2024 assessment is the first time habitat condition for Grizzled Skipper has been assessed in Wales, particularly at this scale and away from a small number of Common Standards Monitoring assessments. Approximately 1190 ha of habitat was assessed for the butterfly, with around 1184 ha found to support suitable habitat (Good/Fair/Poor). Good habitat was found on approximately 114 ha, Fair on 635ha, Fair/Poor on 50 ha and Poor on 384 ha. The site supporting the most extensive area of suitable habitat was MoD Pendine with approximately 555 ha, the majority (457 ha) being in Good to Fair condition (including Fair/Poor condition) (see Table 12).

Table 12. Habitat condition (hectares) for the ten sites assessed in 2023-2024.

Site	Vice county	Good	Fair	Fair/Poor	Total Good/Fair	Poor	Total Suitable	Total ha assessed	Total site area ha
HMP Berwyn	50	0.69	2.77	0.55	4.01	2.79	6.8	9.02	18.7
Llanymynech Rocks (MWT)	47	1.97	2.85	0.13	4.95	1.82	6.77	6.76	10
Llanymynech Golf Course	47	0.8	1.81	0.16	2.77	4.09	6.86	6.89	50
MoD Pendine	44	43.13	414.72	0.00	457.85	97.83	555.69	555.69	920
Pembrey AFR	44	9.23	49.67	3.52	62.42	62.47	124.89	127.64	180
Pembrey Forest	44	15.98	38.39	13.11	67.48	8.72	76.2	76.2	850
Merthyr Mawr Warren	41	40.06	121.67	0.00	161.73	13.39	175.12	175.12	368
MoD Caerwent	35	2.83	3.47	30.0	36.3	193	229.3	229.82	458
Llanmelin Hillfort	35	0.09	0.00	2.83	2.92	0.00	2.92	2.92	16
Slade Wood	35	0.00	0.17	0.00	0.17	0.22	0.39	0.39	142
<b>Total</b>	-	<b>114.78</b>	<b>635.52</b>	<b>50.3</b>	<b>800.6</b>	<b>384.33</b>	<b>1184.93</b>	<b>1190.45</b>	-

MoD Caerwent supported 229 ha of suitable habitat but only 36 ha was considered to be in Good-Fair condition (including Fair/Poor condition), with approximately 193 ha mapped as Poor (although only half of the site was mapped; Hipkin, 2025). Merthyr Mawr Warren supported more habitat in the Good-Fair/Poor categories (175 ha), with only 13 ha considered to be Poor. The western end of Merthyr Mawr Warren was not assessed but is known to support suitable habitat; it is considered likely that a further 34 ha could probably be added to the amount of suitable habitat at this site with the majority likely of Good and Fair condition. This would increase the total suitable habitat at this site to around 209 ha, with approximately 195 ha of this in the Good to Fair categories.

Pembrey Aerial Firing Range supported 124 ha of suitable habitat, about half of which was categorised as Poor. Pembrey Forest supports approximately 76 ha of suitable habitat, with only 10ha of this classed as Poor. The remainder of the sites, all in mid and north-east Wales support less than 10 ha of suitable habitat, with habitat in the Good to Fair/Poor categories not exceeding 5 ha on any site.

The site with the largest amount of Good condition habitat was MoD Pendine (43 ha) with Merthyr Mawr Warren supporting a similar amount with 40 ha. The rest of the sites all support less than 20 ha of Good condition habitat, with Pembrey Forest supporting the most with 15 ha. One site did not support any Good condition habitat (Slade Wood), with the HMP Berwyn Ecological Mitigation area supporting the next smallest amount with 0.7 ha.

The main factors potentially limiting populations on sites were identified as too much scrub and rank swards leading to the loss of floristic richness (and therefore nectar resources) and early successional habitat. On large sites such as MoD Pendine, this lack of sward

structure limits habitat condition over large areas. Overgrazing was only identified as a limiting factor on one site (MoD Caerwent). Foodplant abundance was identified as a limiting factor on only one site, Slade Wood, which suggests that there are opportunities across the majority of sites to significantly increase habitat condition through appropriate management. For example, extensive areas of Fair condition habitat at MoD Pendine and Merthyr Mawr Warren have the potential to be restored to Good Condition habitat by restoring a more variable sward and managing scrub to a level where it is a balanced part of the habitat mosaic contributing a key habitat feature required by Grizzled Skipper, rather than detracting from habitat quality. At the other end of the grazing spectrum, the tightly grazed grassland with minimal sward structure, scrub and nectar at MoD Caerwent has the potential to provide a much more favourable environment for the butterfly if its requirements are factored into management plans for the site (Hipkin, 2025). On smaller sites e.g. HMP Berwyn, there are also important potential gains to be made. As suitable habitat extent here is substantially less than e.g. on the large coastal sites, opportunities to increase habitat quality must be maximised to ensure that the mosaic of key habitat features required by the butterfly are present wherever possible.

### **3.4 Connectivity & site networks**

In north-east (Denbighshire) and mid Wales (Montgomeryshire), the small amount of suitable habitat present on the sites, coupled with the low amount in Good condition, presents a real threat to Grizzled Skipper populations present. These sites are, however, connected to other nearby populations and it is therefore imperative that connectivity between sites / populations is maintained and enhanced alongside increasing habitat extent and quality where possible. On the Carmarthenshire coast, it is highly likely that Pembrey Forest and Pembrey Aerial Firing Range support a single, connected population of the butterfly with a combined area of 200 ha of suitable habitat, of which 25 ha is in Good condition. The nearest population to the Pembrey Forest/Pembrey Aerial Firing Range population is MoD Pendine which lies approximately 4 km west across the 'Three Rivers' estuary which may present a significant barrier to dispersal. Merthyr Mawr Warren, although supporting extensive suitable habitat and one of the highest proportions of Good condition habitat, appears to be isolated in the landscape and not part of a wider network - the Carmarthenshire populations are the nearest approximately 50 km away. In the Caerwent area of Monmouthshire, there are four sites in close proximity between which dispersal may occur. However, with the exception of MoD Caerwent, the other populations are thought to be Very Small (Llanmelin Hillfort), transitory (Slade Wood) or with an unconfirmed status to confirm whether butterflies recorded represent a breeding population or wanderers from MoD Caerwent. This site network therefore appears weak, largely represented by MoD Caerwent.

### **3.5 Current management & threats**

The 2014 status assessment identified that several sites were stock grazed for conservation, with scrub clearance practised on several, but that many were unmanaged, with rabbit grazing being the only factor keeping many of the sites from becoming unsuitable for the butterfly. The main factors potentially limiting populations were grassland

swards being too short, lack of bare ground and excessive scrub growth. The main threats were perceived to be a lack of management (i.e. natural succession) on some sites and overgrazing on others. Development of the sites on post-industrial land were also perceived to be a key threat.

In 2023-2024, nine sites were found to support seven Grizzled Skipper populations. Scrub removal was practised on all sites to varying degrees and has led to the creation of Good habitat condition on a number of sites, particularly in coastal areas where Sea Buckthorn has been removed. However, a major constraint to the effectiveness of this management is the lack of grazing or sufficient grazing (extent and intensity) to provide an effective and sustainable method of ongoing scrub control.

Four sites appeared to be actively grazed by livestock: MoD Pendine, Pembrey Aerial Firing Range (cattle), small areas of Llanymynech Golf Course and MoD Caerwent (sheep), with grazing at the latter site decreasing habitat suitability due to the creation of a short uniform sward and low floristic richness. Grazing had previously been in practice at Llanymynech Rocks Reserve and Merthyr Mawr Warren but has been suspended due to insecure boundary fencing at both sites and issues with public-livestock interactions at the former site. At the remaining three sites, grazing is either likely to be impractical (HMP Berwyn) or is impractical (Pembrey Forest and Slade Wood forestry sites). Rabbit grazing remains an important factor in maintaining suitability of many of the sites for Grizzled Skipper but cannot, on its own, maintain site suitability were present.

Mowing was practiced at three sites; it is the main method of maintaining sward suitability at HMP Berwyn whereas at MoD Pendine and Pembrey Aerial Firing Range mowing is restricted to the verges where there is scope for the development of a more sympathetic regime to deliver additional habitat for the butterfly.

On the basis of the 2023-24 site visits, the main threats on sites currently supporting Grizzled Skipper are perceived to be a lack of, or insufficient, management leading to natural succession and the development of a rank sward. Although scrub management is practised at all sites, the lack of grazing (on sites where this is/should be practical) drastically reduces the impact, effectiveness and sustainability of this management, particularly in the medium to long term. Although scrub is identified as a key threat, it is one of the key mosaic elements the butterfly requires; the retention of scattered scrub within and around the edges of larger grassland areas and around the edges of smaller areas is therefore vital to provide both habitat diversity and shelter for the butterflies. Development pressure is only considered to be a key threat in one landscape, Wrexham Industrial Estate. Since the 2014 status report, around 30 ha of suitable Grizzled Skipper habitat has been lost to the prison development although much work has been done to identify sites supporting Grizzled Skipper and suitable habitat to enable the continued presence of the butterfly and needs to be factored into the planning process.

## 4. Conclusions

Grizzled Skipper is an increasingly threatened butterfly in Wales. There are only seven known populations spread over nine sites, with only six of these considered to be key sites. Even at these sites, the population densities are generally low, and the butterfly can sometimes be hard to detect. Resurvey of six sites is needed to determine whether it is still present; one of these sites (Trecwm Valley) is considered highly likely to still support Grizzled Skipper and is a high priority for survey. Extinction is considered to have occurred at one site (Eyarth Rocks) whilst another site only supports a transitory population. A further eleven sites with singleton records are worth a visit when resources allow.

The eight sites supporting the six key populations are owned by public and private bodies: Council (1), Wildlife Trust (1), MoD (3), NRW (2), private (1). Six sites are SSSI designated but only four of these have Grizzled Skipper as a qualifying feature. Wrexham Industrial Estate and Pembrey Forest have no designation but support key Grizzled Skipper populations.

Calcareous grassland and dune are the most extensive habitats supporting Grizzled Skipper in Wales, comprising 85% of Good and Fair condition habitat assessed. Although extensive areas of suitable habitat were present, Good condition habitat, with all key elements needed by the butterfly, is infrequent; some larger sites have only 10% of habitat in this category.

However, larval foodplants are not a limiting factor on most sites, suggesting significant opportunities to increase habitat quality. Many larger populations seem quite isolated with significant distances or barriers to dispersal between them and the nearest population. Small populations in mid and north Wales, however, appear connected to nearby populations, increasing the likelihood of persistence in the face of limited suitable habitat extent (less than 7 ha) and condition.

Foodplant abundance was only identified as being a limiting factor on one site (Slade Wood); the main causes of sub-optimal habitat are too much scrub and rank swards, with the resultant loss of floristic richness (and therefore nectar resources) and early successional habitat. Lack of, or insufficient grazing, was identified as the principal contributing factor. Development is a known threat to the butterfly on Wrexham Industrial Estate; habitat extent and quality have significantly reduced since the last status assessment. Hopefully, the future of HMP Berwyn Ecological Mitigation area is secured but development pressure continues to pose a significant threat on the wider Estate.

## 5. Recommendations & next steps

The recommendations of this report are:

- Actions should be put in place to ensure the seven current populations are safeguarded from development, managed appropriately and populations strengthened, wherever

possible, increasing habitat extent, quality and connectivity (within and between sites) to conserve the species at the landscape scale. To maintain and increase network viability, new habitat must be restored/created to enable colonisation by the butterfly. Raising awareness of the presence of Grizzled Skipper, its threatened status and ecological requirements will be key to unlocking favourable management opportunities, with appropriate targeted advice and support helping to implement conservation action;

- Better monitoring of populations (by single-species transects or timed counts) should be undertaken. At sites with monitoring established, every effort should be taken to ensure full coverage of the butterfly's flight period. Where monitoring has lapsed, e.g. at Pembrey Forest, efforts should be made to resurrect a programme and resource appropriately. The practicality of undertaking monitoring on MoD sites - Caerwent, Pendine and Pembrey Aerial Firing Range - should be explored and a way of keeping an eye on how these populations are faring found. Away from key sites, surveillance (presence-absence) surveys should be undertaken at other sites at least once every five years;
- Further survey visits are required to complete habitat assessments at Pembrey Forest, Merthyr Mawr Warren and MoD Caerwent;
- Surveys of sites where access was not possible in 2023-2024 should be undertaken as soon as resources allow, with Trecwm Valley the top priority. Surveys of sites that have known to supported populations in the past, but which now are classed as 'status uncertain – resurvey required', should also be undertaken but are a lesser priority;
- Repeat habitat assessments to monitor the impact of management regimes implemented for Grizzled Skipper should be undertaken to determine success and learn lessons to help improve future management decisions;
- If development is to occur at any sites supporting Grizzled Skipper, adequate mitigation will be required to prevent the further fragmentation and possible loss of populations.
- Consider SSSI designation of the HMP Berwyn mitigation area and other areas occupied by Grizzled Skipper on the wider Wrexham Industrial Estate. Add Grizzled Skipper as a qualifying feature of Twyni Lacharn - Pentwyn / Laugharne - Pendine Burrows SSSI given its presence on MoD Pendine.

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## 7. Acknowledgments

We would like to thank Dr. Mike Howe and Bethan Beech of NRW for commissioning the report and providing us with the opportunity to produce a status update for Grizzled Skipper, following the last assessment in 2014. Some of the survey, monitoring and assessment work reported on was undertaken as part of additional contracts already in place; we therefore extend our gratitude to Bumblebee Conservation Trust and Wrexham County Borough Council for funding work in the Carmarthenshire Coast area and at HMP Berwyn respectively. We would also like to thank all the landowners and land managers for allowing us access to undertake these surveys, and for their interest in managing land for Grizzled Skipper. A huge thank you must also go to the many volunteers that have generated records for Grizzled Skipper, through casual recording and transect counts, providing invaluable data to underpin status assessments and inform conservation action.

## 8. Individual site results & discussion

### 8.1 Llanymynech Rocks Reserve (Montgomeryshire Wildlife Trust)

Note: Llanymynech Golf Course is included in the adult survey results below as this site is considered to comprise the same population as the Llanymynech Rocks reserves.

#### Adult surveys

BC staff undertook two site visits to the Montgomeryshire Wildlife Trust (MWT) part of Llanymynech Rocks on 17<sup>th</sup> and 26<sup>th</sup> May 2023. No Grizzled Skipper were recorded on either visit. The weather on 17<sup>th</sup> May was overcast and quite chilly which likely impacted on adult detectability. Weather on 26<sup>th</sup> May was much better and whilst the butterfly was not recorded by BC staff, two members of the public encountered whilst on site said they had seen one individual; late May is towards the end of the butterfly's flight period at this site. There are also several records on the North Wales Lepidoptera website dating from 2023 and 2024 including a peak of 10 adults on 3<sup>rd</sup> May 2023. A site visit to Llanymynech Golf Club was undertaken on 19<sup>th</sup> May 2023 but no Grizzled Skipper were recorded.

#### Butterflies for the New Millennium (BNM) data

The Grizzled Skipper population on the Llanymynech and Llyncllys Hills SSSI is spread over three sites spanning the Welsh-English border - Llanymynech Rocks Reserve (Montgomeryshire Wildlife Trust), Llanymynech Rocks Reserve (Shropshire Wildlife Trust) and Llanymynech Golf Club. BNM records for the butterfly at these sites start in 1983 and show the butterfly to be quite widely distributed with concentrations occurring on the reserves, along the Offa's Dyke footpath, and in the northern part of the Golf Course. The butterfly occurs over these sites at a low density with maximum counts for any one day from a single recorder rarely getting into double figures. Particularly good years appear to have been in 2000, with ten seen on a number of occasions, and in 2014 when 30 were recorded on a single visit. Between 2010 and 2014, records largely dropped to single figures. Since then, records from single visits have peaked at around ten in the majority of years. Grizzled Skipper records are more frequent and occur in greater abundance on the Llanymynech Rocks reserves than the Golf Course; this is likely due to restricted access and the quality and distribution of habitat at the latter site.

In 2023, 10 individuals were recorded by a single recorder on 3<sup>rd</sup> May 2023 from Llanymynech Rocks reserve (MWT) and one individual was recorded from the Golf Course (on the UKBMS transect) on 5<sup>th</sup> June 2023. In 2024, noted as being a poor butterfly year for many butterfly species, there are 19 records of the butterfly from seven different dates in May; all but one of these records are from *iRecord* and unfortunately do not have associated abundance data. The maximum number of records on any one day was eight which could denote a minimum of eight Grizzled Skipper; however, it is not possible to determine whether these records were recorded by the same or different recorders on that

day. Overall, BNM data indicates that the butterfly population is relatively stable, both in terms of distribution and abundance across these sites and particularly on the Wildlife Trust reserves.

A map of Grizzled Skipper records for the Llanymynech Rocks Reserves (MWT & SWT) and Llanymynech Golf Club is provided in Figure 5. A larger version of the map is provided in Appendix 3, Map 1.

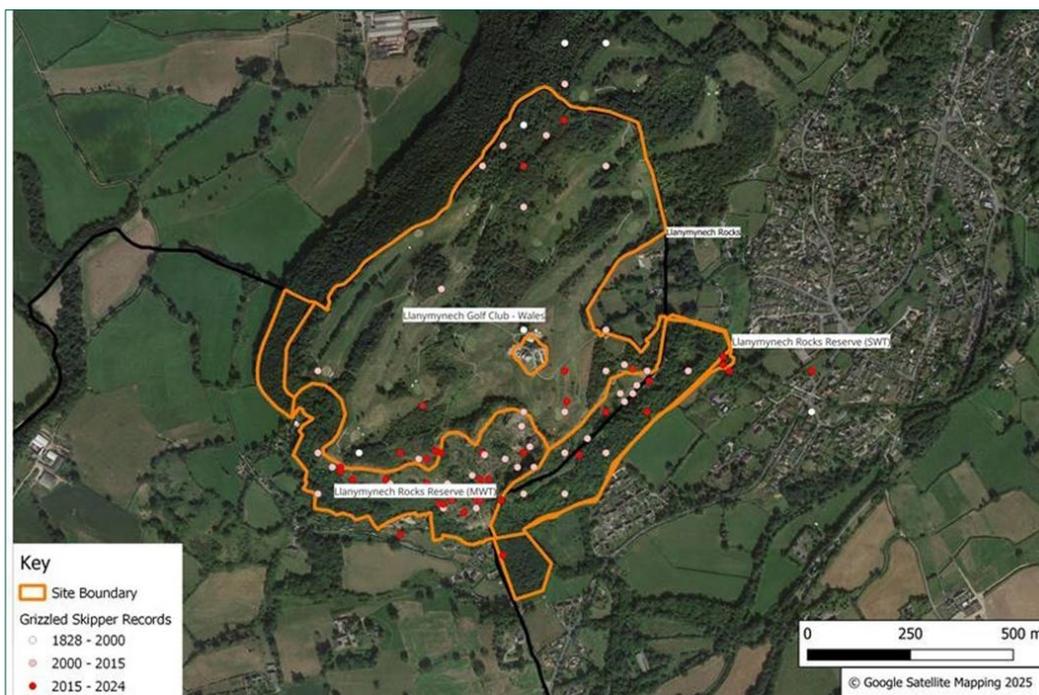


Figure 5. BNM Adult Grizzled Skipper records for Llanymynech Rocks Reserve (MWT & SWT) and Llanymynech Golf Club.

## UK Butterfly Monitoring Scheme (UKBMS) data

A transect was established on Llanymynech Hill SSSI in 2011, but data was not submitted to the UKBMS until 2013 (no Grizzled Skipper were recorded). This transect is 3900m long and encompassed the Shropshire and Montgomeryshire Wildlife Trust Reserves and land at Llanymynech Golf Course (Figure 6). A larger version of the map is provided in Appendix 3, Map 2a.

Transect data indicates that there has been a decline in the number of butterflies recorded on the transect, with a total of five recorded in 2022 compared to 35 in 2014. No more than twelve Grizzled Skipper have been recorded annually on the transect since 2014. However, it should be noted that there are only three years of data with an index, that is with enough counts undertaken during the flight period, in suitable weather conditions, for an index to be calculated to enable a robust comparison between years. A year by year count plot for the transect is shown in Figure 7 with a year by year index plot shown in Figure 8.

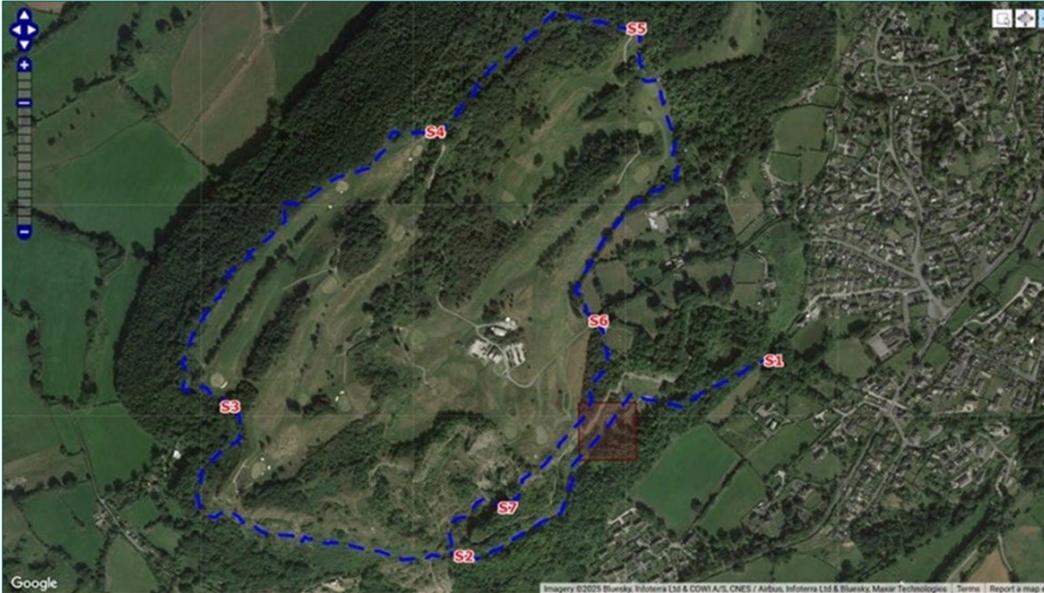


Figure 6. Llanymynech Hill SSSI Transect Route 2011-2022. Map taken from the UKBMS portal.



Figure 7. UKBMS Grizzled Skipper year by year count plot for Llanymynech Hill SSSI.

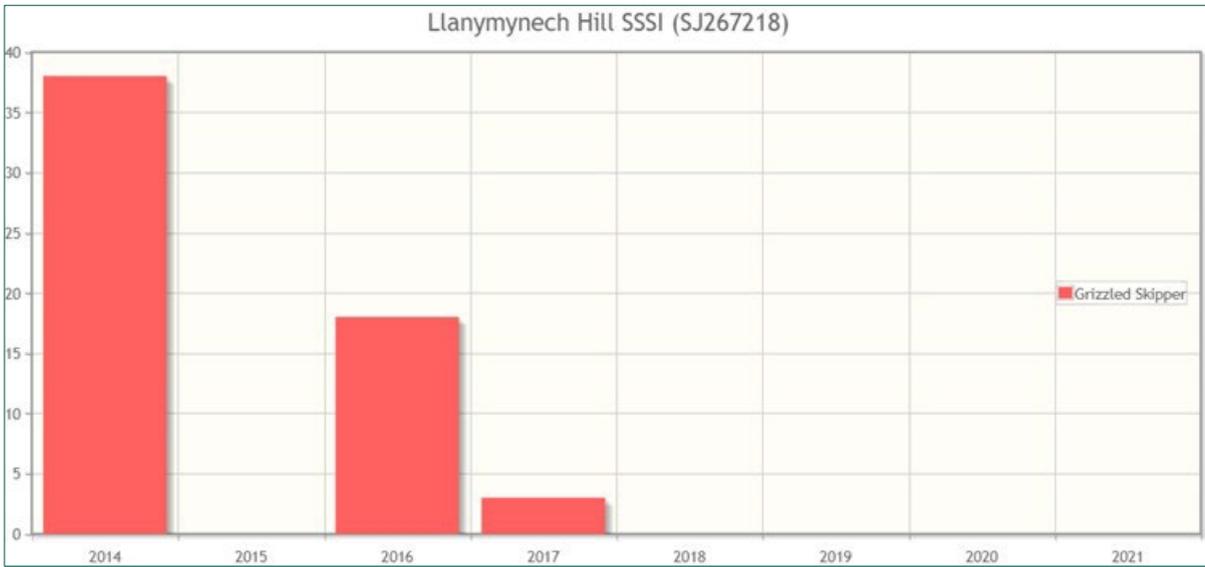


Figure 8. UKBMS Grizzled Skipper year by year index plot for Llanymynech Hill SSSI.

The Llanymynech Hill SSSI transect was stopped after the 2022 transect season due to difficulties in walking some sections of the route. Two new separate transects were established in 2023, one covering the Llanymynech Rocks Wildlife Trust reserves (Figure 9) and one covering Llanymynech Golf Course (Figure 10). Larger version of these maps are provided in Appendix 3, Maps 2b and 2c.



Figure 9. Llanymynech Rocks MWT transect – established in 2023. Map taken from the UKBMS portal.

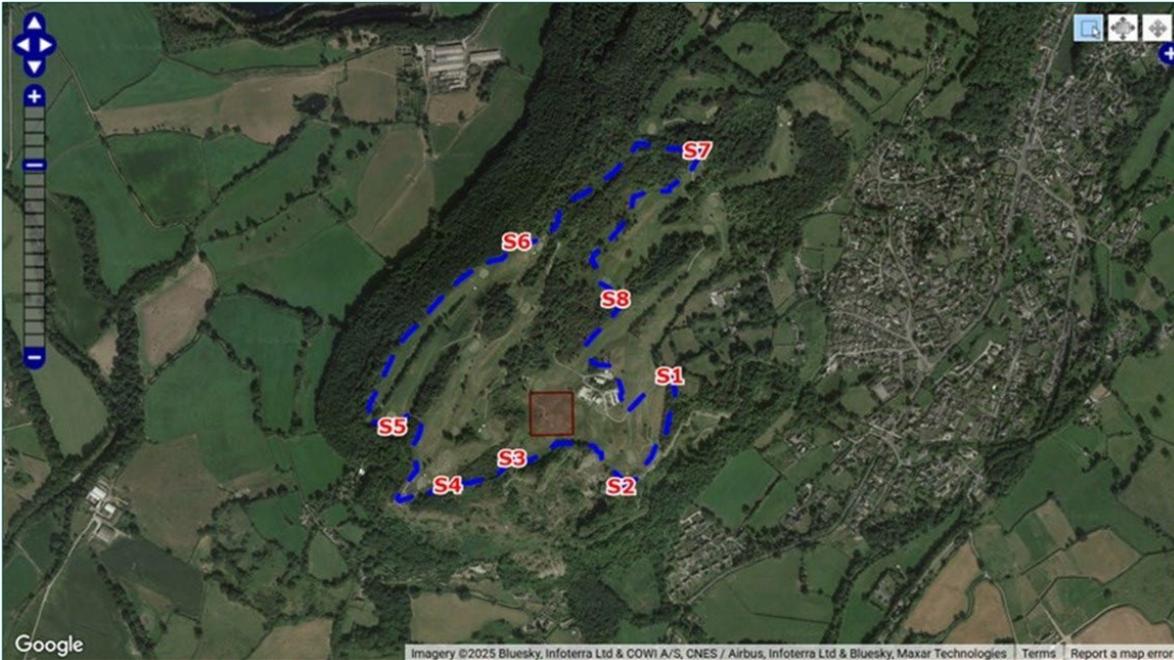


Figure 10. Llanymynech Golf Course transect – established 2023. Map taken from the UKBMS portal.

Data for these transects show that, in 2023, a single Grizzled Skipper was recorded on 20<sup>th</sup> May 2023 at Llanymynech Rocks (Section 3, MWT side running along Offas Dyke footpath); a single individual was also recorded on the same section in 2024. On the Llanymynech Golf Course transect, a single butterfly was recorded on 3<sup>rd</sup> June 2023 (Section 6 which runs through the Pearl-bordered Fritillary enclosure); the butterfly was not recorded from the transect in 2024.

## Habitat extent & condition assessment

A map showing habitat condition mapping for Llanymynech Rocks Reserve (MWT) is shown in Figure 11. A larger version of the map is provided in Appendix 3, Map 3a. A map showing the locations of Target Notes recorded is also provided as Map 3b.

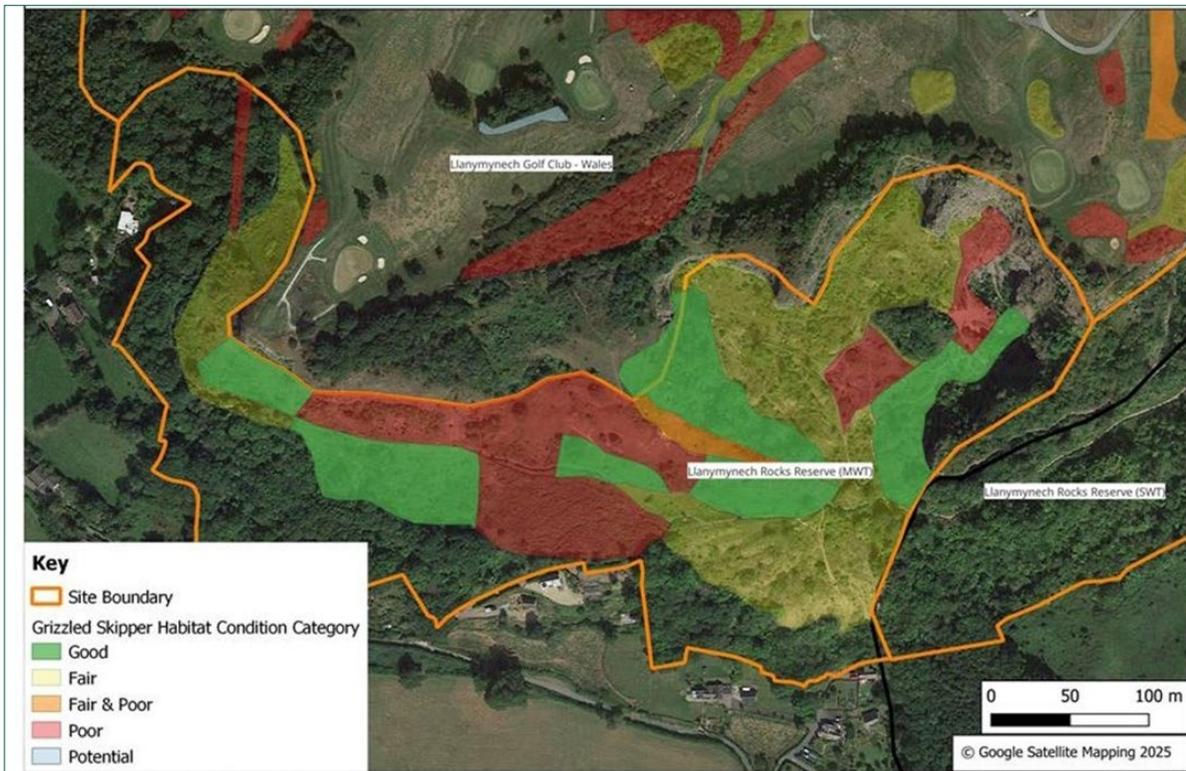


Figure 11. Grizzled Skipper habitat condition assessment for Llanymynech Rocks Reserve (MWT).

A table of Target Notes is provided in Appendix 13, Table 1. A Site Survey Form from the 2023 survey is provided in Appendix 14, Form 1. Table 13 provides approximate figures for habitat condition extent.

Table 13. Habitat condition (hectares) for land surveyed at Llanymynech Rocks (MWT).

Condition	Area in hectares (ha) of site surveyed	Area as a percentage of site surveyed
Good	1.97	29.0
Fair	2.85	42.13
Fair & Poor	0.13	1.91
Poor	1.82	26.88
<b>Total</b>	<b>6.76</b>	<b>100</b>

Llanymynech Rocks Reserve (MWT) is around 10 hectares in size. Approximately 6.8 hectares of habitat on the reserve were assessed in terms of suitability for Grizzled Skipper, with c.3 hectares of the site not assessed due to it either supporting unsuitable habitat (woodland or dense scrub) or being inaccessible (steep slopes of the disused quarry). Approximately 30% (1.97ha) of the assessed habitat was recorded as Good Condition for Grizzled Skipper. Good condition habitat is principally found in six areas spread across the site, with particularly good areas at the western and eastern margins of the disused quarry and to the west of the lower enclosure. The majority of these areas support abundant Wild Strawberry, the main larval foodplant present at the site, growing in a mosaic with short flower-rich vegetation and scree, with taller vegetation (including

abundant seed heads) and low scrub also present. The varied topography of these areas, with hummocks and hollows, together with a variation of slope steepness and aspect, further increases habitat suitability for the butterfly. In one area, the main foodplant was Salad Burnet as opposed to Wild Strawberry. All of the areas assessed as Good Condition would benefit from targeted scrub management to clear more scrub back to the edge of the open grassland to maximise habitat extent and suitability for the butterfly whilst retaining sufficient scrub scattered within the larger areas, and around the edge of these together with the smaller open areas, to provide habitat diversity and shelter for the butterflies.

Approximately 42% (2.85ha) of assessed habitat was recorded as Fair condition, the majority of this being present in the east of the reserve, in the disused quarry and associated lime waste tips to the south. The larval foodplant Wild Strawberry is less abundant in these areas and taller vegetation tends to be less frequent, particularly where there is less topological variation, more bare ground and rabbit grazing. No specific management to increase the suitability of these areas was noted, although retaining scattered scrub within and around the edges of these areas will provide larval foodplants and other vegetation some protection from rabbit grazing, maintaining and potentially enhancing habitat suitability. In the west of the site, the areas mapped as Fair habitat would benefit from targeted scrub clearance, pushing back more scrub to the edge of the open areas whilst retaining pockets as habitat and shelter.

Approximately 27% (1.82ha) of the habitat was assessed as Poor condition. The majority of this habitat condition is in areas supporting abundant Common Rock-rose *Helianthemum nummularium* with Wild Strawberry only occasionally recorded. Limited Wild Strawberry is also recorded in the flatter areas of the disused quarry where the vegetation is very short (rabbit grazed) with larval foodplants only found in association with scrub and path edges which afford some protection from rabbit grazing. There is little that can be done to enhance the suitability of these areas, with the exception of the lower enclosure. A limited amount of Wild Strawberry is present in a small, open grassland area near to the enclosure entrance; the rest of the area is dominated by dense bracken and bramble. Scrub and bracken management to open up some of this area and create habitat edge along with some ground disturbance may encourage the establishment of Wild Strawberry and other important plants such as Dog Violet, increasing the suitability of the area for a number of species.

## Habitat management assessment

An on-site meeting was held with Rob Haigh, Montgomeryshire Wildlife Trust Reserves Officer on 6<sup>th</sup> October 2023 to gain an understanding of the reserve and its management. The Montgomeryshire Wildlife Trust reserve is in the Glastir Organic agri-environment scheme; a limited amount of money is received for capital works. The reserve is not under an NRW S16 Management Agreement.

### Scrub management

Great Crested Newt has been recorded from within/nearby Llanymynech Rocks. Initially, this restricted the height of the vegetation cut allowed to 15 cm. The height restriction has since been reduced to 5 cm but with the proviso that arisings are cleared immediately

after. Consequently, MWT is no longer cutting scrub down to ground level as the associated arisings cannot be cleared within the time constraint. Instead, scrub is cut to around 1 m high to allow light into grassland areas whilst generating a manageable amount of arisings to dispose of. Even in the absence of Great Crested Newt constraints, there is little point in cutting scrub to the ground until arrangements can be made for the site to be correctly grazed, as staff and volunteers cannot keep up with management of the regrowth.

MWT does not have consent to dispose of arisings by burning and there are no agreed burn sites. Instead, MWT makes habitat piles in locations pre-agreed by NRW. In 2019, a lot of scrub clearance was undertaken as part of a Pearl-bordered Fritillary project; since then, scrub re-growth has come back strongly across the site. Scrub clearance on the reserve needs to be piecemeal and rotational, as is currently happening, rather than large areas cleared at any one time. There are certain constraints around maintaining a scrub/grassland mosaic due to the SSSI requirements regarding scrub on the limestone grassland. However, for species such as Grizzled Skipper, and invertebrates in general, it is important to retain some degree of scattered scrub on the grassland for shelter.

The 'Pearl-bordered Fritillary enclosures' are currently dominated by scrub. MWT spent one day in 2023 cutting everything back and making habitat piles, but follow-up grazing is key to achieving sustainable management on the site. MWT will also try to open up some of the other outcrops present on the site. The top enclosure was woodland in the past and has only supported open habitat since 2000; MWT would like to see the enclosures removed and the areas managed alongside the wider site. MWT currently spends over 12 days of staff time and over 100 volunteer days on the reserve. They are very keen to maintain a mosaic of habitats on the site, retaining corridors to facilitate e.g. butterfly movement across the site that are sheltered rather than wide, open, windy areas.

## Grazing

The site has Organic status which constrains the grazing livestock used. There are three main management compartments, the two enclosures and the wider site. Water to the site is via a tap at the house below the lower enclosure. The reserve is poorly fenced, particularly the boundary with the golf course (part of the golf course is currently fenced into the reserve). A large amount of new fencing would be required if grazing were to be re-introduced to the reserve.

There have been no livestock grazing the MWT reserve for two years. Historically the site was winter grazed by sheep. Initially numbers were low, with around 10 sheep put on the reserve every night and moved off every morning by a neighbouring farmer to avoid dog attacks. Sheep numbers increased to around 30 through a joint project with Shropshire Wildlife Trust (SWT) who purchased a flock of Hebridean sheep. However, there were communication difficulties between MWT and SWT regarding stock movement on and off the reserve. SWT subsequently sold the Hebridean sheep and purchased Dexter cattle. Grazing with Hebrideans worked well as this breed is particularly suited to grazing the steep slopes. However, whilst the grazing worked well in the enclosures there were issues with grazing the wider reserve due to interactions with dogs; the reserve is used heavily and extensively by dog walkers.

Ponies and horses have also been trialled in the past, unsuccessfully. In 2021, four Welsh Black cattle, borrowed from RSPB, were put on the MWT reserve for 60 days at a cost of around £2,000. The cattle needed watering every day, involved 1-2 hrs of lookering and stayed on the flatter areas resulting in the steeper banks becoming rank. MWT had to undertake photo monitoring of key features of the site as part of the consent obtained from NRW to cattle graze. NRW specify June to August grazing for the SSSI as they consider this period least detrimental to the Pearl-bordered Fritillary; this grazing period may however be detrimental to other key features of the site. MWT would ideally like autumn/winter grazing on the reserve; summer grazing results in the sheep eating grass rather than the scrub.

### Other Management Consideration

Cotoneaster is spreading on the reserve; volunteers are currently pulling it up by hand. Some coppicing (Ash, Hazel, Hawthorn) has been and is being undertaken in the woodland; all material is left in situ. In areas where Ash trees are felled due to Ash Dieback, there is the potential to create additional open habitat for Lepidoptera.

## Discussion

### Llanymynech Rocks and Llyncllys Hills SSSI

Llanymynech Rocks and Llyncllys Hills SSSI is an isolated group of Carboniferous Limestone hills which have been extensively mined and quarried for stone and minerals. There are extensive grassland, scrub and woodland communities and also natural rock faces, screes, a series of abandoned quarries and areas affected by past lead and copper mining. The mosaic of woodland, scrub, sunny flower-rich grassland and bare rocky places supports a variety of butterflies which alongside the Grizzled Skipper include Dingy Skipper *Erynnis tages*, Green Hairstreak *Callophrys rubi*, Dark Green Fritillary *Speyeria aglaja* and Silver Washed Fritillary *Argynnis paphia*, White-letter Hairstreak *Satyrion w-album* (although there are no records of Dark Green Fritillary or White-letter Hairstreak for at least the last five years) and, until 2019, a population of the rare Pearl-bordered Fritillary *Boloria euphrosyne*.

Although the 2023 site visits did not record any Grizzled Skipper, BNM data shows that the butterfly continues to be widespread at a low density over the three sites spanning the Welsh-English border. BNM records do not indicate any significant change in the distribution or abundance of this butterfly population over time. Transect data is currently not robust enough to draw any meaningful conclusions from. Hopefully, the two new transects will provide annual indices for the butterfly for the foreseeable future, allowing a trend for the population to be generated, which can, in turn, contribute to a Wales trend. It may be worth considering undertaking further survey work, over a number of years, to identify key areas, the extent to which these coincide with the transect route and whether timed counts in these areas would be useful to augment the transect data and keep a closer eye on how Grizzled Skipper is faring.

## Llanymynech Rocks Reserve (MWT)

Around 70% (6.8 ha) of the reserve area is considered to be suitable, to varying degrees, for Grizzled Skipper. The majority of the non-suitable habitat comprises woodland; it may be possible to create some additional suitable habitat pockets via coppicing, scalloping and as a result of Ash Dieback but it is considered unlikely that this would significantly increase the extent of suitable habitat on the site.

Around 70% (5 ha) of the Llanymynech Rocks reserve comprises Good or Fair condition habitat; the main difference in key features between these two categories is the amount of Wild Strawberry present; the other key habitat features required by the butterfly are generally present across the site. Whilst the quality of Good condition habitat could be further improved through targeted scrub management, it is considered that the majority of Fair habitat cannot be improved much by management due to environmental conditions limiting foodplant availability. Likewise, there is little that can be done to enhance the suitability of Poor condition areas with the exception of the lower enclosure where scrub and bracken management may potentially result in the creation of some Fair habitat. The overriding need for the reserve is for grazing to be re-instated to provide a sustainable solution to controlling natural succession and maintaining the valuable open limestone grassland area on which Grizzled Skipper and a wealth of other wildlife depend.

Piecemeal and rotational scrub management via MWT staff and volunteer work parties is, overall, maintaining the valuable mosaic of key habitat features required by Grizzled Skipper. The retention of scattered scrub as habitat and shelter for the butterfly is key and should be given adequate consideration alongside the botanical interest of the site. The lack of grazing on the reserve is a barrier to the long-term sustainable management of the site. Dog - livestock interaction is the overriding issue preventing sheep grazing as well as organic status limiting stock availability. Further consideration should be given to finding a solution to the grazing issue; this will be difficult but necessary to create a viable long-term management model for the reserve.

Maintaining connectivity between the Welsh and English sides of the Llanymynech Rocks reserves and the golf course is key to maintaining a network of sites close to one another to ensure the butterfly's long-term survival. The three sites are currently reasonably well-connected with no significant barriers to dispersal evident. However, any improvements to facilitate butterfly movement around and between the sites will be beneficial. These include maintaining open habitat along the Offa's Dyke footpath, particularly at the western end where it joins the golf course and ensuring that large areas of unsuitable habitat do not occur, or if unavoidable due to habitat type, sheltered routes through are maintained.

## Recommendations

- Weekly transect walks with full coverage of the Grizzled Skipper flight period.
- Additional Grizzled Skipper surveys to identify key areas for the butterfly and establishment of timed count monitoring if required.
- Targeted scrub clearance in all areas of Good condition habitat. Push back scrub to grassland edge, retaining sufficient scattered scrub within and around the edges of larger areas and at edges of smaller areas to provide habitat diversity and shelter.

- Fair habitat in east of reserve - retain scattered scrub within and around habitat edges to provide larval foodplants protection from rabbit grazing.
- Fair habitat in west of reserve - targeted scrub clearance, push back scrub edge but retain pockets as habitat and shelter.
- Lower enclosure - scrub and bracken management and creation of bare ground to encourage larval foodplant establishment.
- Piecemeal and rotational scrub clearance – aim to maintain a mosaic of habitats with scattered scrub and sheltered corridors to facilitate butterfly movement across the site.
- Explore opportunities re-instatement of grazing including funding sources for boundary re-fencing alongside discussion about grazing periods with NRW.
- Maintain habitat connectivity between the two reserves and the golf course - open up habitat along the Offa's Dyke footpath (particularly at the western end where it joins the golf course) and use opportunities created by Ash Dieback to create suitable Grizzled Skipper habitat where appropriate. Ensure that large areas of unsuitable habitat do not occur, or if unavoidable due to habitat type, sheltered routes through are maintained.
- Take a landscape-scale, cross border partnership approach to developing a Grizzled Skipper conservation/recovery plan.

## 8.2 Llanymynech Golf Course

No Grizzled Skipper adults were recorded during the survey but a singleton was reported from Section 6 of the Golf Course on 5<sup>th</sup> June 2023 (North Wales Lepidoptera website).

### Habitat extent & condition assessment

A map showing habitat condition mapping for Llanymynech Golf Course is shown in Figure 12 below. Appendix 3, Map 4a, provides a larger version of this map. A map showing the locations of Target Notes recorded is also provided as Map 4b.

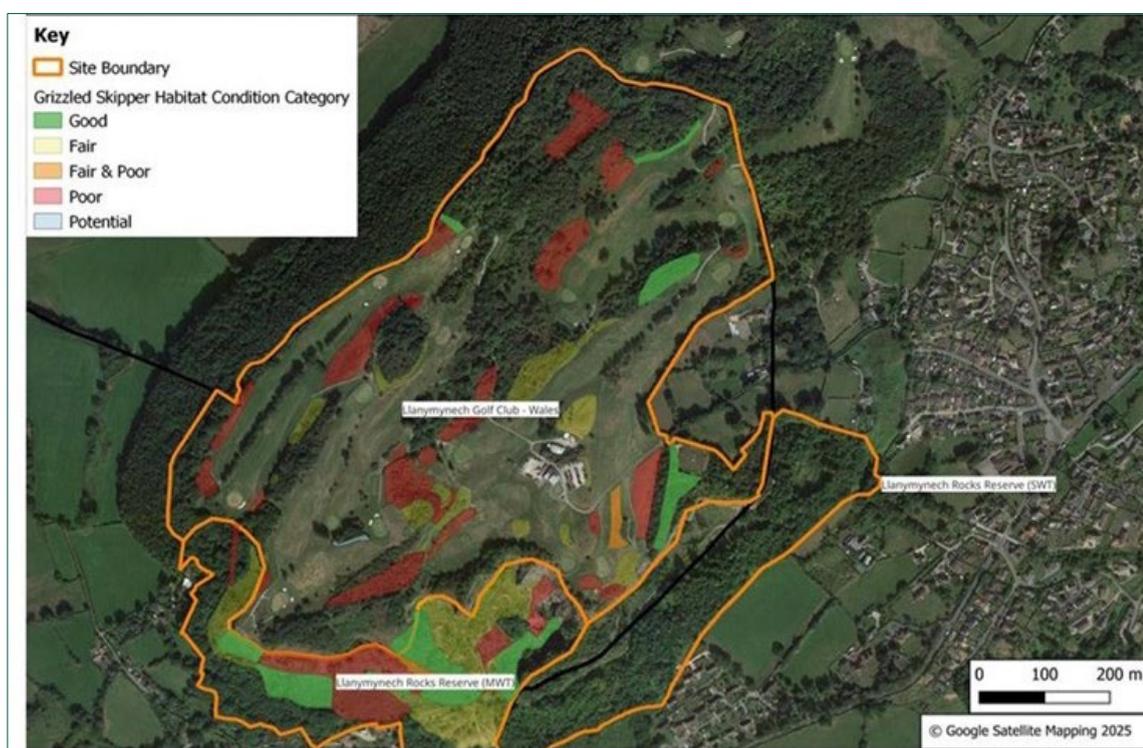


Figure 12. Grizzled Skipper habitat condition assessment for Llanymynech Golf Course (Wales side only).

A table of Target Notes are provided in Appendix 13, Table 2. A Site Survey Form from the 2023 survey is provided in Appendix 14, Form 2. Table 14 provides approximate figures for habitat condition extent.

Table 14. Habitat condition (hectares) for land surveyed at Llanymynech Golf Course (Wales side only).

Condition	Area in hectares (ha) of site surveyed	Area as a percentage of site surveyed
Good	0.80	11.55
Fair	1.81	26.31
Fair & Poor	0.16	2.27
Poor	4.09	53.34
<b>Total</b>	<b>6.89</b>	<b>100</b>

Llanymynech Golf Course is approximately 50 ha in size (Welsh side only). Around 7 hectares (14%) of the course was assessed in terms of its suitability for the Grizzled Skipper. Areas that were not assessed included the fairways and the areas of woodland and dense scrub.

Approximately 11% (0.8 ha) of the assessed habitat was recorded as Good condition for Grizzled Skipper. This habitat condition is largely restricted to three areas in the east of the site. The best area is a recently cleared ride running parallel to the access road to the south-east of the club house; Wild Strawberry is Abundant along with Occasional Creeping Cinquefoil and Agrimony. Retained bands of scrub and woodland provide all important shelter as well as habitat. A recently cleared area on a south-facing bank in the north-east of the site supports Frequent to Abundant Wild Strawberry and Agrimony along with shelter, nectar and bare ground. Away from these areas, only a couple of other small pockets of Good condition habitat are present.

Approximately 28% (1.9 ha) of habitat assessed was recorded as Fair (or Fair & Poor) condition. These areas largely comprise recently cleared areas that are revegetating, with larval foodplants evident but limited in both distribution and abundance. These areas require mechanical cutting or grazing to control scrub regrowth and aid the development of limestone grassland. A small number of Fair condition areas support the majority of key requirements of Grizzled Skipper but lack shelter, an important element on this exposed site. In these areas scrub pockets should be allowed to develop where appropriate.

The majority of the assessed habitat on the site was recorded as Poor condition (4 ha) for Grizzled Skipper. This is to be expected given the extensive scrub clearance that has recently been undertaken across the course. The main element lacking in these areas is any abundance of larval foodplants. Many of these areas are also being invaded by low scrub (largely bramble); control of scrub by mechanical means or grazing is key to aiding the development of these areas into limestone grassland supporting an abundance of larval foodplants and the other key resources that the butterfly requires.

## Habitat management assessment

Llanymynech Golf Course is part of the Llanymynech and Llyncllys Hills SSSI and has an NRW S16 Management Agreement under which they receive monies to support ongoing scrub clearance.

### Scrub management & grazing

There have been a number of projects over the years that have attempted to try and restore the species-rich grassland for which the SSSI is designated. These have encompassed several Wildlife Trust projects involving scrub cutting and other habitat management. The aim of management is to achieve a mosaic of light scrub and pockets or strips of open grassland with a range of sward heights.

In 2021, Llanymynech Golf Club was successful in its funding application to round two of the Nature Networks Fund. The successful bid received £91,000 to restore the grassland on the golf course, which had become covered by dense thickets of Ash, Sycamore and Hawthorn. Scrub clearance was carried out during the winters of 2021-22 and 2022-23;

this work was undertaken both by contractors and by the Golf Club via machinery purchased under the grant. This has transformed large areas of the golf course and Himalayan Balsam (*Impatiens glandulifera*) is also under control.

Follow-up scrub management is needed across the recently managed areas to control bramble and other invading scrub and encourage the development of limestone grassland. Some of this will need to be in the form of mechanical cutting in the short-term whilst grazing in areas outside the enclosure is trialled. For Grizzled Skipper, prioritising the enhancement of the Good and Fair condition areas, followed by those Poor areas noted as supporting larval foodplants but being invaded by scrub or other vegetation, will hopefully result in a network of sheltered limestone grassland areas providing the butterfly's key requirements.

The enclosure area was grazed for a short period in winter 2023 by cattle whose grazier now has a registered holding on the Golf Course. Sheep have also been used to graze one of the other cleared areas.

The plan is to extend grazing to new parts of the golf course to ensure that the limestone grassland, when it recovers, is not invaded by scrub. There are a number of issues that need to be worked through with solutions trialed to enable sustainable grazing of the golf course to become a reality. This will involve taking a slow, careful and well thought out approach to ensure that the needs of all parties are considered, and all are on board with any decisions made.

## Discussion

Around 7 ha of the golf course is considered to be suitable, to varying degrees, for Grizzled Skipper; around 2.8 ha is Good or Fair condition habitat. Approximately 60% (4 ha) was assessed as Poor condition habitat; the majority of these areas were recently cleared through a Nature Networks Fund grant and are in the process of re-vegetating. If scrub management by grazing or mechanical means can be targeted at these areas, then they should hopefully become Fair or ideally Good habitat for the butterfly in time. Monitoring their suitability for Grizzled Skipper, and other butterflies such as Pearl-bordered Fritillary (no longer present at the site), will provide the feedback required to direct and alter management regimes to give the best chance of success in providing crucial breeding habitat for the species as well as linking habitat to sites in England including Llyncllys Common to the north-east. The separate butterfly transect at the golf course, which is now up and running, will help monitor the success of the extensive management work and will hopefully track an increase in distribution and abundance of the butterfly on the site. Complementing this with a repeat habitat condition assessment in a couple of years' time will help better understand the impact of grazing, when hopefully established, and the effectiveness of any mechanical scrub management undertaken.

## Recommendations

- Targeted scrub management across previously managed areas to control scrub-regrowth and encourage limestone grassland development. Mechanical cutting in

short-term with grazing trialled outside the enclosure. Prioritise Good and Fair condition areas, then Poor, and ensure scattered scrub / scrub pockets are retained as shelter.

- Maintain and enhance habitat connectivity with areas used by Grizzled Skipper on Llyncllys Common (England).
- Repeat the habitat condition assessment in a couple of years to monitor grazing impact and the effectiveness of mechanical scrub management.
- Take a landscape-scale, cross border partnership approach to developing a Grizzled Skipper conservation/recovery plan.

## 8.3 HMP Berwyn Ecological Mitigation Area (Wrexham Industrial Estate)

### Background

Prior to the prison being built, this Brownfield site occupied an area of approximately 45 ha. It previously accommodated the Firestone Tyre Factory and, prior to this, a panelling manufacturer and initially a munitions factory. The site was vacated in 1993, transferred into Welsh Development Agency (now Welsh Government) ownership, cleaned of buildings and remediated. The site was then left to develop naturally for 20 years, becoming colonised by grassland and scrub resulting in a Brownfield site of high environmental value, supporting 'Open Mosaic Habitat on Previously Developed Land'.

A planning application for 26.1 ha of the site was submitted to Wrexham County Borough Council (WCBC) by the Ministry of Justice in 2013 and permission to build the prison was granted in January 2014. The prison opened in February 2017. As mitigation for the prison development, 18.66 ha was earmarked as an Ecological Mitigation Area and transferred from Welsh Government to WCBC. A Habitat Management Plan was written for the Ecological Mitigation Area, covering a minimum period of 25 years starting from winter 2013/14. Works in years one to five were the responsibility of the Ministry of Justice (MoJ); from year 6, due to the national importance of the site, responsibility for protecting its biodiversity interest was transferred to WCBC. Planning consent was subsequently given for a 2.8 ha extension of the adjacent F Lloyd Penley site into the south-western part of the Ecological Mitigation Area.

The resultant HMP Ecological Mitigation Area is approximately 18.7 ha, which now includes a bunded area in the north-west of the site. In 2022, a 5-year contract was awarded by Wrexham County Borough Council to a partnership of North Wales Wildlife Trust (NWWT), Butterfly Conservation (BC) and the Amphibian and Reptile Conservation Trust (ARC) to manage and monitor the site. Work under the contract commenced in spring 2023, guided by a revised Ecological Mitigation Strategy and Habitat Management Plan for the site written by TEP in 2020 (TEP, 2020).

### Previous Grizzled Skipper survey & monitoring

Prior to the prison being built, Grizzled Skipper was widespread over the 'Firestone site'. The highest count by a single recorder was 40 adults on 12<sup>th</sup> May 2005. Other high counts were 33 on 24<sup>th</sup> May 2012 and 24 on 22<sup>nd</sup> May 2018; the former two counts were on the large 'firestone site' prior to prison construction whereas the latter count was within the Ecological Mitigation Area.

Butterfly Conservation has visited the site several times over the years; a total of 25 Grizzled Skipper was recorded in 2012 and 15 in 2013 during walkover surveys to inform the Wales-wide dossier for the butterfly. There was no site access between 2014 and 2017 whilst the prison was built. Butterfly Conservation undertook walkover surveys of the site again in 2018, recording 24 Grizzled Skipper on 22<sup>nd</sup> May and 12 on 29<sup>th</sup> May. A visit by North Wales Wildlife Trust on 12<sup>th</sup> May 2019 recorded eight individuals.

There has been no standardised, ongoing monitoring of the Grizzled Skipper on the Ecological Mitigation Area, despite the inclusion of monitoring objectives in the initial Ecological Mitigation Strategy and Habitat Management Plan for the site (ENVIRON, 2018). In 2014, TEP consultancy established a transect, undertaking six visits between 29<sup>th</sup> April and 8<sup>th</sup> June with a peak count of 34 Grizzled Skipper on 24<sup>th</sup> May; these counts likely missed peak flight as no counts were undertaken in mid-May. No further survey or monitoring at the site was undertaken until 2018 when TEP undertook a 'survey' for Grizzled Skipper comprising identification of key areas for the butterfly followed by a series of transect walks covering these areas on 9<sup>th</sup> May (3 recorded) and 31<sup>st</sup> May (11 recorded).

A survey of the wider Wrexham Industrial Estate in May and June 2024 recorded 11 adult Grizzled Skipper at five sites (one each on Site 4, 13, 16 & 19, and seven on Site 10) (Davis & Moore, 2025). It was concluded that suitable Grizzled Skipper habitat is still found widely across the Estate, but that it is decreasing in area and quality and becoming more fragmented owing to a range of threats including habitat loss to development, scrub encroachment and inappropriate tree planting.

## 2023 UK BMS transect

A single species transect was established within the HMP Berwyn Ecological Mitigation Area in spring 2023 with Dingy Skipper recorded as a secondary species. 2023 was used as a 'trial year' for the transect to determine whether the route was appropriate in terms of achieving a representative sample of the site and providing an easily navigable route for transect walkers. The 2.4 km transect comprised eight sections passing through the main areas of open grassland on the site. Due to the lack of site management in recent years, and it not being feasible to clear the entirety of the transect route prior to commencement of the transect season, rank vegetation and scrub impeded access to some transect sections, particularly 7 and 8 which were largely not walked by the volunteers in 2023. It was considered important that inaccessible areas were included in the transect so that the route is based on what the site is going to look like.

A total of three transect walks were undertaken, these were on 18<sup>th</sup> May, 25<sup>th</sup> May and 2<sup>nd</sup> June 2023. A peak count of 19 Grizzled Skipper was recorded on 2<sup>nd</sup> June with 38 Dingy Skipper also recorded during this walk. The full results for the three walks are shown in Appendix 4, Table 1. An additional walk by a group of volunteers was undertaken on 26<sup>th</sup>

May. This walk was considered to be more of a detailed count as opposed to a transect count as transect guidance was not adhered to. The results of this survey are provided in Appendix 4, Table 2. A total of 24 Grizzled Skipper and 44 Dingy Skipper were recorded.

A map of the Grizzled Skipper transect (showing the updated 9 sections – see paragraph below) is provided in Figure 13 below, with Grizzled Skipper records from BC transect counts on 18<sup>th</sup> and 25<sup>th</sup> May also shown. The records show the butterfly to be distributed throughout the site, with particular abundance on Sections 2, 5 and 6. This pattern in distribution and abundance was also seen for Dingy Skipper.

Over the course of the season, it was decided to add a ninth section, to allow recording along the return walk from the end of Section 8 back to the access gate. This section lies outside the Ecological Mitigation Area boundary, but within the 10 metre-wide grassland zone adjacent to the boundary fence of the prison and is managed by the prison operator. The Ecological Statement (ENVIRON, 2018) for the site states that 50% of the area around the west, south and east perimeter of the prison would be maintained as areas consisting of low, prostrate vegetation and bare ground to benefit Grizzled and Dingy Skipper. The addition of this separate transect section will generate useful records from the return walk, determine the management undertaken and whether the strip is being used by the skippers, for breeding, nectaring etc.

As 2023 was a trial transect year and the route not 'fixed', the 2023 results were not entered into the UKBMS on-line portal.

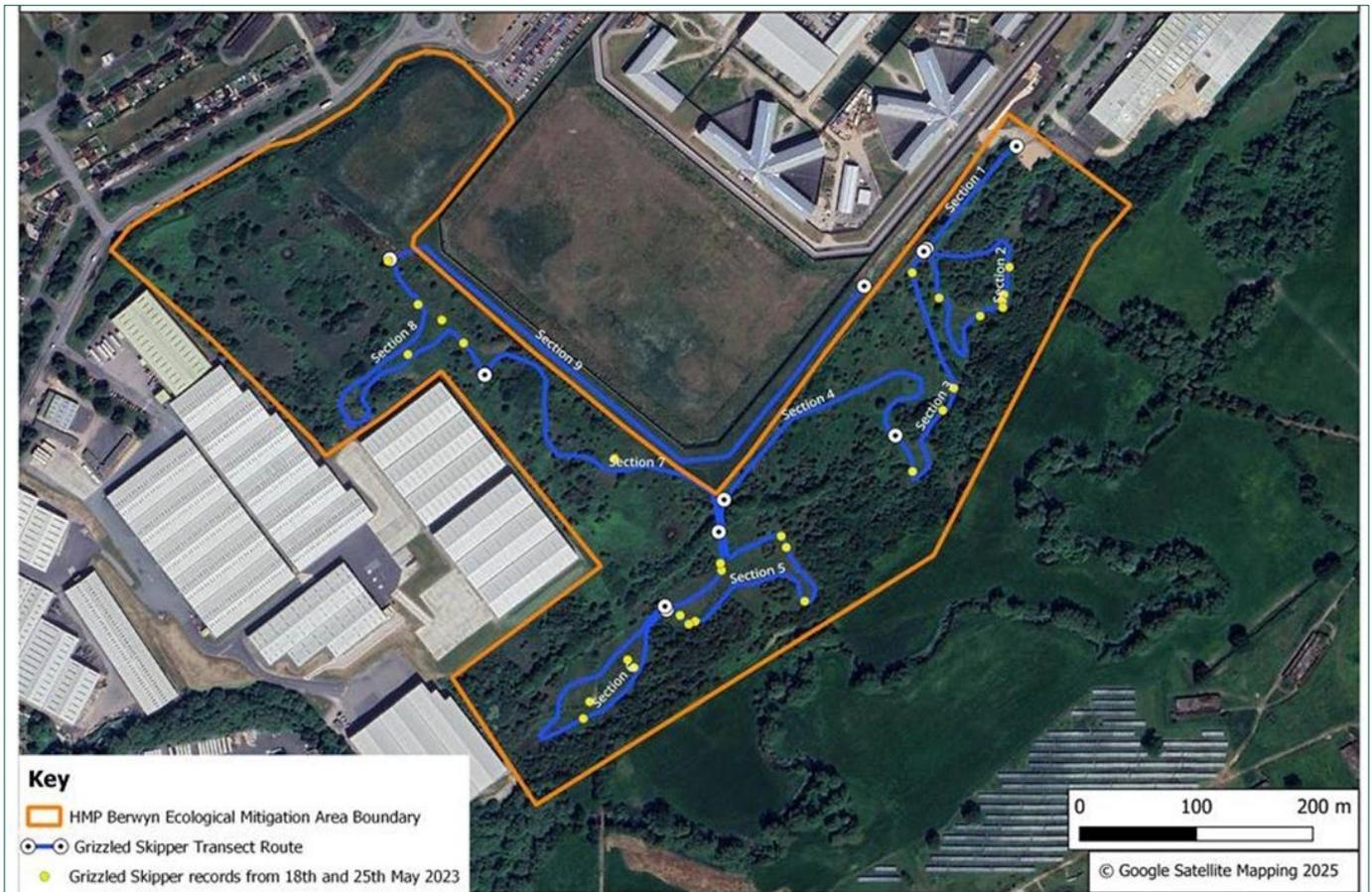


Figure 13. Adult Grizzled Skipper records for 2023 along the transect route at the HMP Berwyn Ecological Mitigation Area.

## 2024 UK BMS transect

The transect walked in 2024 comprised nine sections totalling approximately 2.8 km. Results for 2024, the first year of transect recording along the fixed route, were submitted on-line by all transect walkers.

A total of nine transect walks were undertaken, these walks covered eight different BMS weeks (two walks were completed in Week 12); walks commenced on 22<sup>nd</sup> April and finished on 28<sup>th</sup> June 2024. No walks were undertaken in weeks 10 and 11. A peak count of six Grizzled Skipper was recorded on 19<sup>th</sup> May (Week 7) with a peak count of 17 Dingy Skipper also recorded on this transect walk. Grizzled and Dingy Skipper were only recorded on two of the nine walks undertaken, on 19<sup>th</sup> May and 2<sup>nd</sup> June (Week 9) when a total of four Grizzled Skipper and two Dingy Skipper were recorded. Transect results show Grizzled Skipper continues to be distributed throughout the site (occurring on five of the nine sections) but, as in 2023, abundance was greatest on Sections 2 and 5. Dingy Skipper was also widely distributed, occurring on six of the nine sections, with abundance greatest on Sections 5 and 1. The 2024 transect results are provided in Appendix 4, Table 3. Graphs showing the 2024 transect results by BMS week and by section are provided in Figure and Figure 15 below.

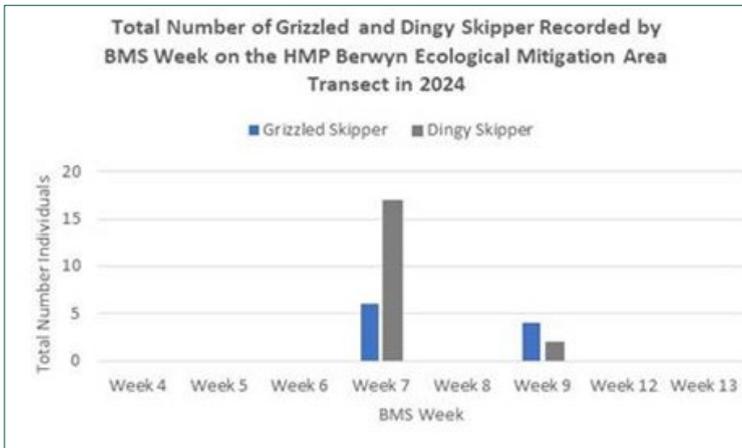


Figure 14. Total number of Grizzled Skipper and Dingy Skipper recorded by BMS week on the HMP Berwyn Ecological Mitigation Area transect in 2024.



Figure 15. Total number of Grizzled Skipper and Dingy Skipper recorded by Section on the HMP Berwyn Ecological Mitigation Area transect in 2024.

The transect results from 2023 and 2024 are not directly comparable as 2023 was a 'trial year' with tweaks made to the route and only a few walks undertaken. However, for interest, 2023 and 2024 Grizzled Skipper data are provided in Figure 16 and Figure . 2024 counts for Grizzled Skipper were considerably lower in 2024 than 2023, with peak count of Grizzled Skipper down by approximately one-third and mirrored by Dingy Skipper counts which were around 40% lower.



Figure 16. Total number of Grizzled Skipper recorded by BMS week on the HMP Berwyn Ecological Mitigation Area transect in 2023 and 2024.

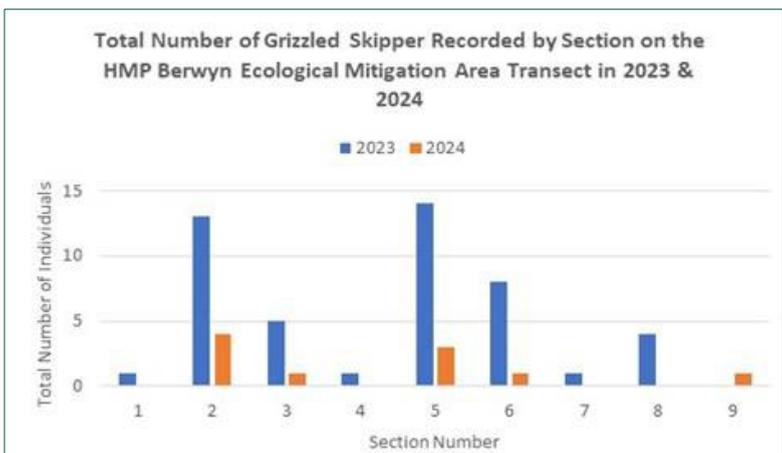


Figure 17. Total number of Grizzled Skipper recorded by section on the HMP Berwyn Ecological Mitigation Area transect in 2023 and 2024.

## Habitat extent & condition assessment

A map showing habitat condition mapping for HMP Berwyn Mitigation Area is shown in Figure 18. A larger version of this map is provided in Appendix 5, Map 2. A map showing the locations of Target Notes recorded is also provided as Map 3.

A table of Target Notes are provided in Appendix 13, Table 3. A Site Survey Form from the 2023 survey is provided in Appendix 14, Form 3. Table 15 provides approximate figures for habitat condition extent.

The HMP Berwyn Ecological Mitigation Area is approximately 18.7 ha, around 9 ha of which were assessed in terms of its suitability for Grizzled Skipper. Approximately 9.7 ha were not assessed due to being dominated by dense scrub and trees; these areas were

largely inaccessible, likely to be unsuitable and considered to now constitute important habitat in their own right, forming a vital component of the habitat mosaic present.



Figure 18. Grizzled Skipper habitat condition assessment for the HMP Berwyn Ecological Mitigation Area.

Table 15. Habitat Condition (hectares) for land surveyed at HMP Berwyn Ecological Mitigation Area.

Condition	Area in hectares (ha) of site surveyed	Area as a percentage of site surveyed
Good	0.69	7.63
Fair	2.77	30.76
Fair & Poor	0.55	6.06
Poor	2.79	30.97
<b>Total</b>	<b>9.02</b>	<b>100</b>

The primary Grizzled Skipper larval foodplant present on the site is Creeping Cinquefoil *Potentilla reptans*. This plant is widely distributed and abundant over the majority of the site, with abundance decreasing to Occasional in Poor condition areas. Agrimony *Agrimonia eupatoria* also occurs widely on the site but not to the extent, or in the same abundance, as Creeping Cinquefoil. This larval foodplant is most abundant in the east of the site and has a patchier distribution over the rest of the site. Bramble is also widespread on the site.

Approximately 7.6% (0.7 ha) of the assessed habitat was recorded as Good Condition for Grizzled Skipper. This habitat condition is largely found in the south-west of the site where two contiguous areas of species-rich neutral grassland support a mosaic of long and short

vegetation with abundant Creeping Cinquefoil often in association with short vegetation or bare ground. Nectar and seed heads are widespread and abundant, and the area is well sheltered by scrub margins. Small amounts of scattered scrub are present within the grassland adding to the valuable mosaic, although the scrub margins are starting to expand into the grassland and, if left, will negatively impact the suitability of the area. A further small area of Good Condition habitat is present in the north-west of the site opposite the north-east corner of the F. Lloyd-Penley warehousing extension.

Approximately 31% (2.8 ha) of assessed habitat was recorded as Fair Condition with a further 0.5 ha recorded as a mosaic of Fair & Poor. The majority of Fair Condition habitat is present in two main areas. The first is a 0.8 ha area of open grassland in the east of the site where Creeping Cinquefoil is abundant, along with nectar sources and seed heads. However, the vegetation is mainly quite tall with scrub, including Bramble, invading from the edges and extending into the grassland interior in places. The second is a grassland area in the north-west of the site supporting abundant to frequent larval foodplants (Creeping Cinquefoil and Agrimony), abundant nectar and seed heads but short vegetation is scarce, and scrub is invading from the margins. The other areas mapped as Fair condition are similar in that the main factor limiting habitat suitability is the lack of a habitat mosaic, with very limited short vegetation, rare bare ground and too much scrub. In the area assessed as Fair/Poor, larval foodplants are again present throughout the grassland but not in any abundance; sward height is tall and scrub incursion well advanced.

Around 30% (2.8 ha) of habitat assessed was recorded as Poor for Grizzled Skipper. These areas either support tall vegetation with limited larval foodplants or grassland where scrub colonisation is well advanced. The majority of the Poor condition habitat is present on a large re-seeded banded area in the north-west of the site adjacent to the HMP Berwyn contractor's car park. A wide variety of wildflowers are present but Creeping Cinquefoil was noted as Occasional. The majority of the sward is tall with only a few areas of shorter vegetation present and limited scrub.

A further 2.2 ha of habitat are considered to be potentially suitable for the butterfly. These comprise areas known to have supported open grassland in the past, but which are now dominated by tall scrub and rank vegetation and therefore largely inaccessible. Further assessment is required to determine the desired outcome for these areas and the most appropriate management methods to achieve it.

As already detailed in a previous section, a 10 m wide zone grassland zone adjacent to the boundary fence of HMP Berwyn is maintained by the prison operator and not included in the Ecological Mitigation Area but is covered by a transect section. A walkover of this grassland was undertaken in 2023, no larval foodplants were visible and the sward was tall and rank.

## Habitat management assessment 2023

Positive habitat management on the Ecological Mitigation Area at HMP Berwyn should have occurred under a number of management plans compiled for the site since the prison development, but unfortunately very little management was actually undertaken.

Management responsibility for the Ecological Mitigation Area now rests with the NWWT, BC and ARC partnership.

In winter 2022/23, the majority of the Grizzled Skipper transect was mown so that it could be walked, with further routes mown to provide access to the ponds to facilitate enhancement works. Even this fairly minimal amount of management has opened up rank and scrub dominated parts of the site and increased connectivity between open grassland areas. In some areas (e.g. the Good Condition along transect sections 5 and 6), the mowing width was extended to encompass some of the adjacent habitat in order to make a start on a gradual, phased approach to returning the site to a more favourable condition.

## Habitat management assessment 2024

In winter 2023/24, the majority of the Grizzled Skipper transect was mown to enable access, with further routes cut to provide access to ponds to facilitate enhancement works. In addition, a partner management day in February 2024 focussed on birch removal from an area of Fair condition Grizzled (and Dingy) Skipper habitat adjacent to the F. Lloyd Penley warehousing.

On 13<sup>th</sup> June 2024, a partner's site meeting was held with staff from WCBC, NRW, NWWT, ARC and BC. Priorities for 2024 management were discussed and agreement reached on a winter mowing plan. Areas currently supporting sparse grassland, and therefore potentially suitable Grizzled and Dingy Skipper habitat, were left largely unmanaged except where perimeter scrub cutting was used to push back the scrub edge. A map showing areas mown in 2023 and 2024 is provided in Figure . A larger version of the map is provided in Appendix 5, Map 4. On-site cutting (other than access routes) is timed to avoid Great Crested Newt *Triturus cristatus* migration periods (September - October, potentially as early as August in some years).

The potential for grazing at the site was discussed. WCBC stated that the site was not suitable for grazing due to issues with ensuring stock safety (livestock poaching), unsafe ground conditions along with the lack of a secure boundary, permanent water source and livestock handling infrastructure. It was also noted that the 10m wide buffer zone adjacent to the prison perimeter fence supported rank vegetation with grasses dominating herbs. The zone has not been managed for two years but should support short-herb rich vegetation, primarily for security reasons. The WCBC Ecologist agreed to contact the Ministry of Justice to flag up the required management.



Figure 19. Meadow cuts undertaken in 2023 and 2024 on the HMP Berwyn Ecological Mitigation Area.

## Future management

The existing open areas of grassland will be managed on a rotational cut and collect regime, with the height of the cut varied to help create a varied structure which is so important to Grizzled Skipper and other invertebrates. The aim is to achieve a mosaic of uncut, short cut and long cut areas, with approximately a third of each as an initial aim which can then be adjusted in future years based on monitoring results. Scraping of grassland areas to create the bare ground and short sward conditions favoured by both Grizzled and Dingy Skippers will also be carried out on rotation to ensure the continuity of these key features. Great Crested Newt is present on the site and grassland cutting regimes must be undertaken at appropriate times of year using best practice methods and under licence to avoid negative impacts on this species. In 2025, a three-year cutting plan for the site will be developed to aid work planning and resource prioritisation, directing work to where it will bring most benefit to Grizzled and Dingy Skipper.

It is envisaged that, through positive management, an increase in habitat condition for the Grizzled Skipper will be achieved in the majority of areas mapped as Fair and 'Fair & Poor' condition. The butterfly's larval foodplants, Creeping Cinquefoil (in particular) and Agrimony, are widespread and abundant in Fair condition areas; restoring a more suitable sward structure, as well as reducing the amount of scrub invading both the interior and edges of these grassland areas will hopefully restore around three hectares to Good condition habitat. This would increase the amount of Good Condition habitat nearly six-fold to approximately 4 ha. Extending this positive management to Poor condition areas will

also potentially increase habitat suitability, particularly in those areas where larval foodplants persist but are outcompeted by tall vegetation and scrub.

As a lower priority, appropriate management for those areas mapped as Potential habitat will be considered and those areas where mowing and scrub clearance will create further grassland pockets, prioritised for action.

Sensitive clearance of scrub on this site is very important. A network of well-connected but sheltered grassland areas is key to maintaining and enhancing the suitability of this site for the butterfly. Maintaining scattered scrub within the grassland areas as habitat and around the perimeter for shelter will help ensure that the micro habitats that this butterfly and other invertebrates require to complete their life cycles are retained, enhanced, and extended. Grazing could offer a more sustainable management alternative in the long-term but several barriers to progressing this will require further consideration to determine whether appropriate solutions exist.

## Discussion

### Adult transect

The HMP Berwyn Ecological Mitigation area has no designation and has only recently come under favourable management via a contract from WCBC to NWWT, BC and ARC.

The 2023 transect data indicated the butterfly to be widespread over the Ecological Mitigation Area and occurring in reasonably good numbers despite the lack of favourable site management. The data also shows that Dingy Skipper, which shares many key requirements with Grizzled Skipper, had a good population at the site and any management undertaken for Grizzled Skipper will also benefit this butterfly.

Due to difficulties in accessing the transect route, only three transect walks were undertaken, covering three UK BMS weeks; the full flight period was therefore not covered and may have missed peak flight. In 2024, whilst the first (Week 4) and last transect walks (Week 13) covered the flight period, weeks 10 and 11, which are important in terms of the known phenology of the butterfly, were missed. Even with two missing weeks, nine walks were still undertaken, but only two of these produced counts for either species. Both species remain widely distributed over the Ecological Mitigation Area in 2024 but in considerably lower numbers than recorded in 2023.

Weather data associated with the transect walks shows that weather conditions for the majority of the walks only just exceeded the minimum conditions specified in UKBMS guidance. Transect walks were undertaken in the best weather conditions available each week but suitable weather windows were very limited in occurrence. On the two dates when skippers were recorded, conditions were noticeably better (20°C degrees with 80 - 100% sun). Met Office data (Met Office, 2024) show that Spring 2024 was unsettled, very wet and dull with a succession of rainy and windy periods. June was cooler than average with northerly and north westerly winds bringing cold air across the UK with frequent showers, particularly in the first half of the month. Butterfly Conservation's 'Big Butterfly Count' sounded the alarm regarding low butterfly numbers after the 2024 count revealed the worst numbers since the count began in 2010 (Butterfly Conservation, 2024).

The unusually wet and windy spring, coupled with the colder than usual temperature, which continued into the early summer, are considered important contributing factors to the low numbers of Grizzled and Dingy Skipper recorded at HMP Berwyn in 2024. Summaries of species abundance changes in the UK from 2023 to 2024 along with long-term and short-term trends were released by the UKBMS in March 2024; they show that Grizzled Skipper suffered its worst year on record at a UK level with 20% decline shown between 2023 and 2024 (UKBMS, 2025b).

In future years, efforts will be made to cover the full flight period of the butterfly so that robust data are collected and a trend for the site calculated, which will also contribute to a Wales trend for the butterfly. The establishment of a transect at the site means that 'reduced effort' surveys (timed counts) will be able to be undertaken at other Grizzled Skipper populations on the Estate. Unlike transects, timed counts need only be carried out once a year at a site in suitable weather (when UKBMS recording criteria are met), with the counts converted to a site index that accounts for both the size of the colony and the time in the season when the count was made. Local transect data is required to generate a meaningful index from the raw timed count data.

Although low butterfly numbers occurred following the first year of habitat management, this intervention is not considered a causal factor. Management is being undertaken in a sensitive, well informed and piecemeal manner to gradually increase habitat suitability over time, as opposed to introducing rapid changes which are often highly detrimental to invertebrates. Following a period of site, habitat and species resource use familiarisation by partners, the development of a 3-year rotational cutting plan for the site in 2025, which will run until the contract end, will be key to the positive future management of the site. This plan will be produced collaboratively with full involvement of partners and other key stakeholders.

### Habitat extent & condition assessment

In 2023, around 6.8 ha (75%) of the Ecological Mitigation Area was considered to be suitable, to varying degrees, for Grizzled Skipper. The majority of the non-suitable habitat comprises dense scrub and trees; it may be possible to create some additional suitable habitat pockets via scrub/tree removal, but scrub and trees are important habitats and vital in the providing the key requirement of shelter for butterflies. It is therefore considered that, outside of the 2.2 ha of 'Potential' habitat (often supporting scrub and trees), the extent of suitable habitat on the site is unlikely to be able to be increased significantly.

Larval foodplants are not a factor limiting habitat condition at the site; Creeping Cinquefoil is widely distributed and abundant, with Agrimony present to lesser degree along with Bramble. Sward height over the majority of the site is quite tall with many areas lacking the presence of shorter vegetation; bare ground is rare across the site. Spring nectar and seed heads from the previous year are abundant across the site as is scrub, both along the site boundaries, around the perimeters of the grassland areas and, particularly in the west of the site, advancing into the grassland interior increasing shading and decreasing habitat suitability and connectivity.

In 2023, around 44% (4 ha) of the Ecological Mitigation Area comprises Good or Fair (including Fair & Poor) condition habitat. The main difference in the key habitat features between these two categories is the lack of a vegetation mosaic and an increase in sward height and scrub incursion, as opposed to a lack of larval foodplants. This indicates that positive management should be able to enhance the Fair condition areas to achieve Good condition. The quality of the Good condition areas could also be further improved by a rotational cutting regime and targeted scrub management. An increase in habitat condition should be able to be achieved for Poor condition habitat, particularly in areas where larval foodplants are still present but outcompeted by tall vegetation and scrub. The 10 m width of grassland around the west, south and east perimeter of the site could contribute over one hectare of either nectar rich habitat or potentially breeding habitat for the skippers (if foodplants are present) if positive management is undertaken to improve the structure and diversity of the vegetation.

## Management

The implementation of a well-informed management plan for the site, under the current partnership management contract, will be key to the positive future management of the site. Rotational cutting of grassland areas and sensitive scrub clearance to ensure that current grassland areas are maintained, extended and connected as part of a sheltered mosaic, will be vital to delivering thriving populations of Grizzled and Dingy Skipper at this site. The success of the next five years under the partnership management contract will be tracked by transect monitoring and a repeat habitat condition assessment in year 5 (2027). Grazing could offer a more sustainable management alternative in the long-term but several barriers to progressing this will require further consideration to determine whether appropriate solutions exist.

Maintaining connectivity between the HMP Berwyn Ecological Mitigation Area and other populations of Grizzled Skipper on the Estate, as well as currently unoccupied patches of suitable habitat, is key to sustaining the current population network on the Estate and strengthening it as opportunities arise. The Ecological Mitigation Area currently supports the strongest population on the Estate, on the most extensive area of suitable habitat. As this population hopefully increases under a favourable management regime, it should act as a source population from which individuals disperse to neighbouring smaller sites to bolster existing populations or form new ones.

## Recommendations

- Weekly transect walks throughout the full Grizzled Skipper flight period.
- Collaborative development of a 3-year rotational cutting plan for the site in 2025, which will run until the contract end.
- Rotational mowing and scrub management of Good condition areas when they no longer support Grizzled Skipper breeding habitat.
- Rotational management of Fair condition areas to create varied sward and push back scrub edge.
- Consider appropriate management of 'Potential' areas and create additional suitable habitat for the butterfly where appropriate.

- Engage with Ministry of Justice regarding favourable management of the 10 m wide buffer zone.
- Maintain habitat connectivity between the Ecological Mitigation Area and the wider Estate.
- Collaborative development of a Grizzled Skipper conservation/recovery plan for the Wrexham Industrial Estate.

## 8.4 Slade Wood

### Adult surveys

BC staff undertook a site visit on 12<sup>th</sup> May 2023 between 12:15 and 14:25. No Grizzled Skipper were recorded on the visit despite relatively favourable weather (17°C, sunny intervals, light to moderate breeze).

A map of BNM Grizzled Skipper records for Slade Wood is provided in Figure 20 below. A larger version of the map is provided in Appendix 6, Map 1.

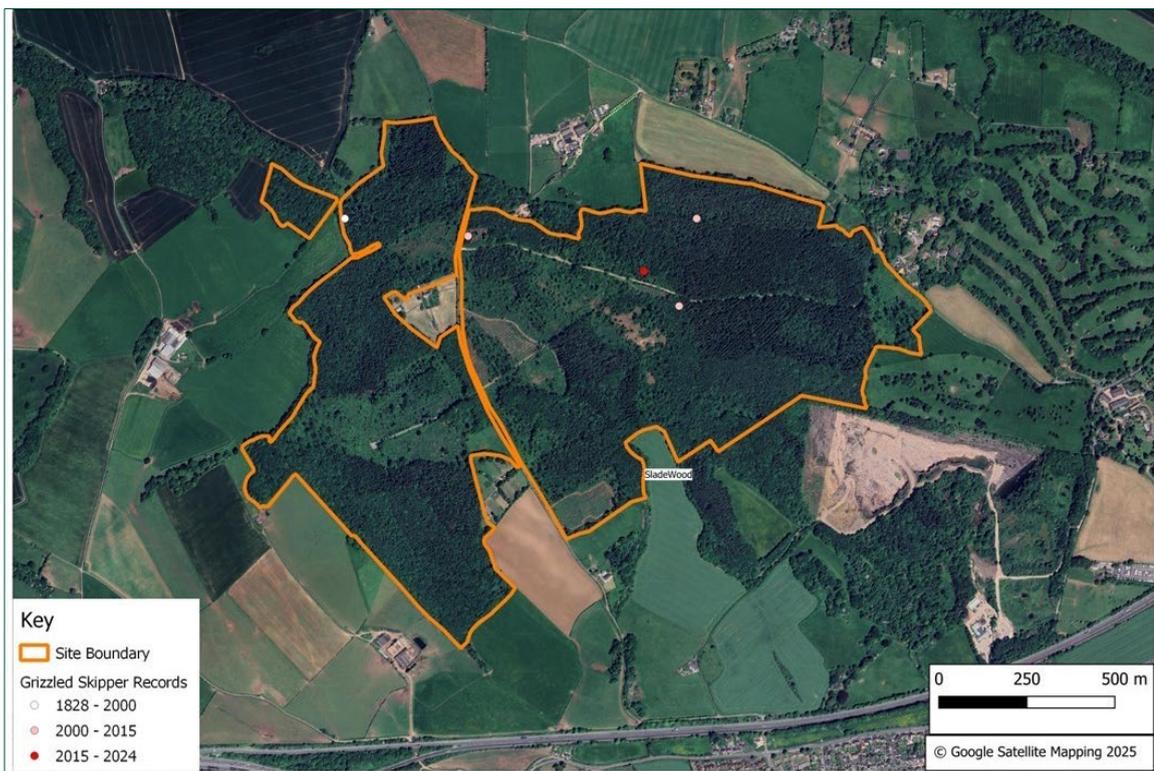


Figure 20. BNM Adult Grizzled Skipper records for Slade Wood.

### Butterflies for the New Millennium (BNM) data

The first Grizzled Skipper record from Slade Wood is from 1971. Singletons have been recorded irregularly since then with the exception of three individuals on 6<sup>th</sup> May 2003 and

two individuals on 7<sup>th</sup> May 2009. The butterfly was not recorded from the site between 2010-2012 despite multiple survey visits as part of the 2014 status report. A singleton was recorded in 2013 and again in 2019 which is the most recent record for the site.

## Habitat extent & condition assessment

A map showing the habitat condition mapping for Slade Wood is shown in Figure below. A larger version of the map is provided in Appendix 6, Map 2.



Figure 21. Grizzled Skipper habitat condition assessment for Slade Wood.

A Site Survey Form from the 2023 survey is provided in Appendix 14, Form 4. Table 16 provides approximate figures for habitat condition extent.

Table 16. Habitat Condition (hectares) for land surveyed at Slade Wood.

Condition	Area in hectares (ha) of site surveyed	Area as a percentage of site surveyed
Good	0.00	0.00
Fair	0.17	42.97
Poor	0.22	57.03
<b>Total</b>	<b>0.39</b>	<b>100</b>

There is a small area (0.17 ha) of Fair condition habitat present in a former quarry located to the south of the main east-west ride. All previous Grizzled Skipper records from the site originate from this area. The quarry supports Occasional (locally Frequent) Wild Strawberry growing in very skeletal soils with much bare ground. However, birch scrub has

been invading for many years and is currently shading out much of the potentially suitable habitat in this area.

The main east-west ride supports 0.22 ha of Poor condition habitat for Grizzled Skipper, with only occasional Wild Strawberry and small amounts of Agrimony.

The majority of the site area is unsuitable for Grizzled Skipper, comprising canopy woodland habitat, former clearfells that support dense scrub and tall herb vegetation, ride-side scallops lacking larval foodplants, or heavily shaded trackside habitat.

## Habitat management assessment

An on-site meeting was held with Rosalind Watkins, NRW Senior Land Management Officer South East Wales (Conservation and Heritage), on 14<sup>th</sup> February 2023 to discuss opportunities for future site management.

The site is an operational NRW woodland comprising a mix of planted conifer stands and remnant broadleaf woodland. Many of the plantation compartments have been felled in recent years, in part due to tree disease and also in line with the long-term plan to revert the woodland to native broadleaf trees. These clear-felled areas are scrubbing up rapidly with brambles and tree saplings.

Management for priority Lepidoptera (including Grizzled Skipper) has been ongoing at the site for many years, through partnership working between NRW and BC. This has involved the creation and maintenance of numerous ride-side scallops (primarily for Drab Looper *Minoa murinata*), periodic scrub clearance from the quarry, and trackside scrub clearance in some other areas. This management has allowed Wood Spurge *Euphorbia amygdaloides* (foodplant of Drab Looper) to thrive, but the vegetation is not open enough for Grizzled Skipper and generally lacks larval foodplants; the butterfly has never been recorded in any of the newly created scallops.

## Discussion

Grizzled Skipper has only ever been recorded as occasional singletons in the quarry area at the site, and not for several years despite a high level of survey effort. Although breeding habitat remains in this area, it appears unlikely that the butterfly is currently resident at the site although there may be occasional breeding attempts following dispersal of a gravid female or females from a nearby site such as Caerwent Quarry. This may result in small, transitory populations at the site in some years. Birch invasion remains a threat to the area of breeding habitat within the quarry and it is unlikely that other parts of the site will ever be suitable for the butterfly without major management works such as the creation of butterfly banks.

## Recommendations

- Focus habitat management works at other priority Lepidoptera present e.g. Drab Looper which have established populations and for which there is scope to deliver substantial conservation benefits for.

## 8.5 Llanmelin Hillfort

### Adult surveys

BC staff undertook two site visits in 2023, on 12<sup>th</sup> May and 25<sup>th</sup> May. The weather was somewhat marginal for butterfly surveys on 12<sup>th</sup> May (16°C, partially cloudy and with a light to moderate breeze) but was more favourable on 25<sup>th</sup> May (19°C, unbroken sunshine). Two Grizzled Skipper adults were recorded on 12<sup>th</sup> May (in different areas of the site) and one was recorded on 25<sup>th</sup> May.

A map of BNM Grizzled Skipper records for Llanmelin Hillfort is provided in [Figure](#) below. A larger version of the map is provided in Appendix 7, Map 1.



Figure 22. BNM Adult Grizzled Skipper Records for Llanmelin Hillfort.

### Butterflies for the New Millennium (BNM) data

The first records for the site are from 2013 when two individuals were recorded. Only singletons were seen in 2014 and 2015 with five recorded in 2016 and two in 2019.

### Habitat extent & condition assessment

A map showing the habitat condition mapping for Llanmelin Hillfort is shown in [Figure](#) below. A larger version of the map is provided in Appendix 7, Map 2.

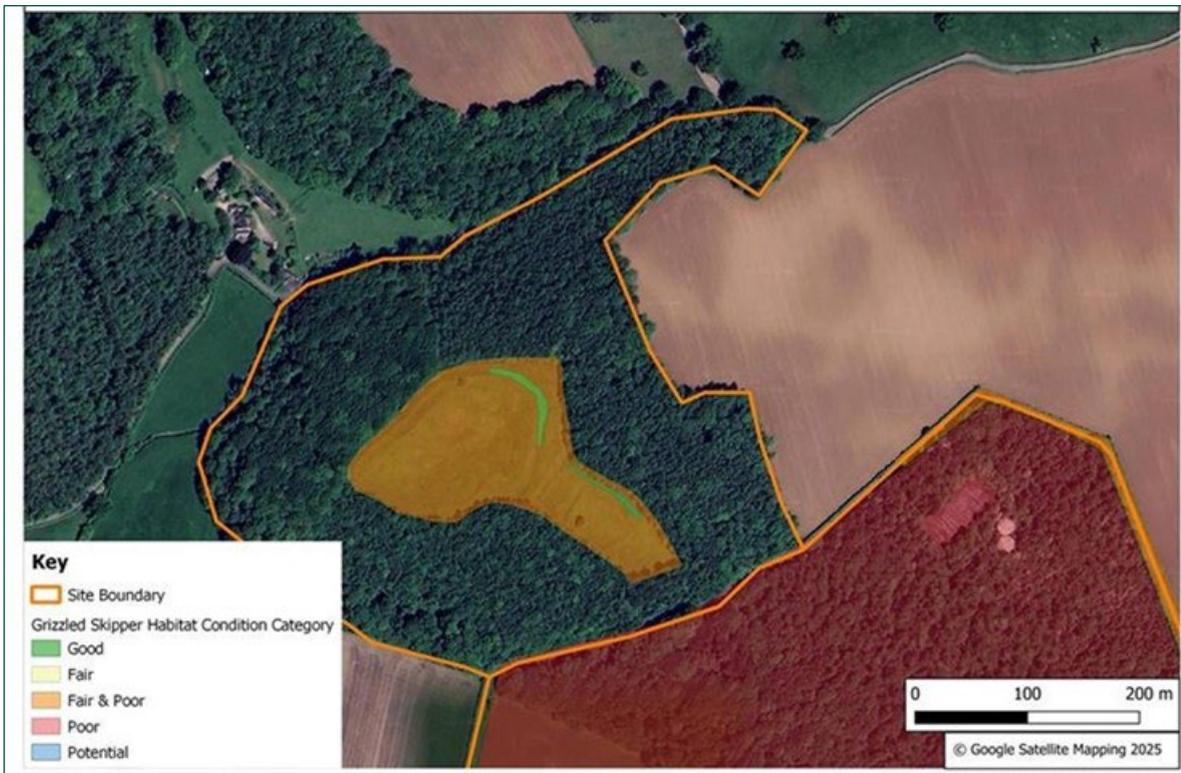


Figure 23. Grizzled Skipper habitat condition assessment for Llanmelin Hillfort.

A Site Survey Form from the 2023 survey is provided in Appendix 14, Form 5. Table 17 provides approximate figures for habitat condition extent.

Table 17. Habitat Condition (hectares) for land surveyed at Llanmelin Hillfort.

Condition	Area in hectares (ha) of site surveyed	Area as a percentage of site surveyed
Good	0.09	3.02
Fair	0.00	0.00
Fair & Poor	2.83	96.98
Poor	0.00	0.00
<b>Total</b>	<b>2.92</b>	<b>100</b>

The site comprises an open hilltop area, though it is surrounded by mature woodland which affords some shelter. The majority of the area comprises a mosaic of Fair & Poor condition habitat (2.83 ha), with patches of tall herbs interspersed with grassland that ranges from relatively short and species-rich to tall and rank. There are also stands of scrub regrowth, in particular Raspberry *Rubus idaeus*. Wild Strawberry is occasional to frequent in areas where the sward is not too tall. Two of the earthworks near the north-eastern boundary of the site support locally abundant Wild Strawberry growing in a short sward with areas of bare ground and exposed rocks; these areas are mapped as Good Condition (0.09 ha) for Grizzled Skipper and are the usual locations for sightings of the butterfly at the site.

## Habitat management assessment

The entire site is managed by annual cutting during autumn or early winter, in order to maintain archaeological interest (the site is a scheduled ancient monument). It appears that arisings are left on site, which is contributing to nutrient enrichment in the flatter areas (nettles and other tall herbs appear to be increasing). In the past the site appeared to be managed less frequently, with scrub cutting not undertaken each year. Anecdotally, parts of the site where raised earthworks are present appear to have become more suitable for Grizzled Skipper since annual cutting was introduced, albeit with some other areas losing condition and becoming ranker.

## Discussion

Grizzled Skipper has been recorded with increasing frequency in recent years, albeit still only in small numbers. This increase in sightings likely corresponds to an improvement in habitat condition on the raised earthworks due to annual cutting, with Wild Strawberry faring very well in these areas. Other areas, however, are often rank, and given the necessity of annual cutting (to maintain archaeological interest) it would be beneficial if arisings could be removed in order to reduce nutrient enrichment. This may be impractical across the whole site but could be trialled in some areas. The site is adjacent to MoD Caerwent, which has much larger areas of Grizzled Skipper habitat. It is likely that individual butterflies move between the two sites, although there is a band of woodland in between.

## Recommendations

- Discuss Grizzled Skipper habitat requirements and habitat management with Cadw. Mosaic management would benefit species. Cut & collect would help to open up sward in rank areas; this is likely to be impractical to do this across the whole site – but could be trialled in some areas particularly removal of arisings from the site.
- Explore opportunities to increase connectivity with MoD Caerwent.

## 8.6 MoD Pendine

### Adult surveys

BC staff undertook two site visits in 2023, on 27<sup>th</sup> May and 29<sup>th</sup> May. The weather was good on both dates. On 27<sup>th</sup> May, it was sunny all day with a max temp of 20°C and a light breeze generally coming from the North. On 29<sup>th</sup> May, it was sunny all day with a max temp of 19°C and a light breeze. The site is large, so the focus of the surveys was to split the site into the eastern half and the western half over the two visits. Sightings were made in small number across the site from eleven separate locations; the western half visited on 27<sup>th</sup> May produced 13 individuals from six locations and on 29<sup>th</sup> May there were 19 individuals from five locations. It was pleasing that areas that looked good generally held adults on the wing.

A map of BNM Grizzled Skipper records for MoD Pendine is provided in [Figure](#) below. A larger version of the map is provided in Appendix 8, Map 1.



Figure 24. BNM Adult Grizzled Skipper records for MoD Pendine.

## Habitat extent & condition assessment

A map showing the habitat condition mapping for MoD Pendine is shown in [Figure 25](#). A larger version of the map is provided in Appendix 8, Map 2.

A Site Survey Form from the 2023 survey is provided in Appendix 14, Form 4. Table 18 provides approximate figures for habitat condition extent.



Figure 25. Grizzled Skipper habitat condition assessment for MoD Pendine.

Table 18. Habitat condition (hectares) for land surveyed at MoD Pendine.

Condition	Area in hectares (ha)	Percentage of area surveyed
Good	43.13	7.76
Fair	414.72	74.6
Poor	97.83	17.6
<b>Total</b>	<b>555.69</b>	<b>100.00</b>

QinetiQ manages roughly 920 ha of land owned by MoD at Pendine. Approximately 555 ha was surveyed across two visits to the site in May 2023. The surveys were conducted towards the end of the Grizzled Skipper flight period and although adults were not found in great numbers they were found widely distributed across the site. The site is infrequently visited by butterfly recorders because the access to the land is highly restricted. Unexploded ordnance is a Health and Safety risk and so all surveyors need a site induction before being allowed onto site and are required to be accompanied by trained staff. It is worth noting that QinetiQ are extremely supportive of these sorts of activities and are easy to communicate with.

In order to make the most of the visits, it was decided to split the site in half for two visits and cover as much ground as possible in each half by driving around the network of roads looking for suitable habitat. Regular stops were made where habitat looked Good (43 ha), and a wider assessment of habitat was done at these locations. It was reassuring that habitat that looked Fair or Poor from the vehicle could be confirmed on closer inspection, and this gave confidence in covering large areas swiftly while recording habitat accurately.

A good example would be the extensive heavily vegetated fixed dunes which constituted Fair habitat (414 ha); abundant foodplant (Dewberry) was present throughout but clearly no bare ground except where a scattering of desire lines created by livestock had weathered sufficiently. The fixed dunes were also predominately floristically poor where the taller grasses were dominant and supported very little scrub.

Grizzled Skipper larval foodplants were available widely across the site. Dewberry was abundant across the fixed dunes with Creeping Cinquefoil and Agrimony also present. Wild Strawberry was found along the edges of the wooded areas and where Creeping Willow was providing some shelter.

Most of the Good habitat was found at the transition between hard standings that surrounded buildings and the fixed dune system. The buildings are scattered across the fixed dune zones but tend to be nearer the leading edges of the foredunes where exposure to the elements was more apparent. All of these buildings had Good habitat nearby. The only element of Good habitat that was in low supply in these areas was the lack of cover provided by scrub. However, the buildings themselves produced shelter and the vegetation on the more sheltered sides was often taller and thicker. The Good habitat was also found in places alongside the road. However, the most common habitat condition along the roadsides was regularly mown vegetation dominated by broad grasses which made up the verge. This would abut tall densely packed vegetation without any transition zone. In some places, the ground conditions produced more exposure to the elements and in these areas the verges were far less defined with bare ground and tall but much less dense vegetation. In these locations, Dewberry would be flourishing.

There was clear evidence that Sea Buckthorn had been removed in previous years. Presumably due to the possible interference with ordnance, the invasive species had been treated and the dead material removed later. In the areas where this had taken place, the habitat condition was Good. There was much more bare sand exposed, and the treated areas were being colonised by flowering plants and foodplants for Grizzled Skipper. It is likely that these areas will remain in Good habitat condition for five years or thereabouts before succession takes place and the taller grasses start to dominate the area. It is not clear how long this might take due to factors that are hard to measure like exposure to the weather. It might be possible to maintain a Good condition in these zones with targeted grazing.

Elsewhere, especially near to Ginst Point (extreme eastern end of site), there were areas where bare ground was nicely distributed among scrub and flowering plants. QinetiQ allows frequent access for the general public to this area via a road. Security gates controlling access to the road leading to Ginst Point are opened during times when the firing range is traditionally inactive, such as from late afternoon and over weekends. As such, Ginst Point represents the location where the majority of Grizzled Skipper records have been made for the wider site in the past.

The Poor areas (97.8 ha) are broadly represented by fixed dune which has dense taller vegetation without many flowering plants and not much bare ground but lots of foodplant. The Poor areas mainly represent the wooded areas and wetland spots on the site. The

improved grassland and lush grazing areas towards the North-west of the site were not surveyed.

It is possible that some Good habitat was missed but the survey has shown that the Good habitat is found widely across the site and so local Grizzled Skipper communities can easily move from one patch of Good habitat to another.

## Habitat management assessment

No works are currently being undertaken by QinetiQ that are specifically focused on habitat management for Grizzled Skipper. Indeed, members of the biodiversity committee that sit a few times a year and who were tasked to facilitate access to the site to allow surveys to be conducted had never heard of the species. On site, current management of the land has a direct impact on Grizzled Skippers in two ways. The first is the fenced off compartments that are found in the fixed dune system. The second is the verge cutting.

The site is grazed at a low intensity to help manage scrub encroachment; sheep graze in the summer but more information about the grazing of the site is required. The fixed dune compartments were not mapped during this exercise as time did not allow it. However, it will be worthwhile to find out if this information is available to form part of the management plan that could be presented to the landowners. The grazing levels for the compartments seemed to be at low density but this should be expected during the summer months. Furthermore, in conversation with one of the biodiversity committee members, it was suggested that the numbers of stock are increased during the winter months. This does seem to be having a positive effect on the control of scrub encroachment, but the wider fixed dune system was rank-looking. In an ideal scenario, we will hope to agree full removal of stock for May through mid-August with higher numbers brought in during the winter.

The verge cutting is a standard guideline for all MoD sites whereby a compulsory verge cut of at least a 2 m width on both sides of the road is cut every two weeks during the summer. This is producing a lawn-like appearance with no bare ground or flowering plants. Frequently, this verge would about tall and dense rank-looking fixed dune vegetation. One of the committee members who was present to supervise the surveying visit was also the operative who cut the verges. It was discussed whether in certain targeted locations a cut could be made in early spring and then again in late summer. These additional cuts could produce a more natural transition zone between the verges and taller and dense fixed dune vegetation where the habitat condition for Grizzle Skipper might improve. The operative said it could easily be done and would welcome a map to identify which parts to do this work.

The MoD Pendine biodiversity committee welcomed the proposal to give them a presentation in 2024 on Grizzled Skippers at MoD Pendine and Wales. The presentation introduced some habitat management suggestions that will benefit the species which will hopefully lead to further discussion and positive actions. It is hoped that further visits can be planned for BC staff to attend the site at least once a year to check on Grizzled Skipper and the wider assemblage of butterflies and moths that are present. This will be aimed at

keeping regular contact with the landowner and inform future habitat management plans about priority species found at Pendine.

## Discussion

The site is fully designated as a SSSI (Twyni Lacharn - Pentywyn / Laugharne - Pendine Burrows SSSI) and is a healthy mixture of habitats dominated by unimproved calcareous grassland on a coastal dune system. The landowners are keen to be involved in conservation where possible and, notably, are very accommodating in allowing access to the site given the sensitive nature of the military operations conducted there and associated Health and Safety risks.

Large areas within the site were found to be in Good condition for Grizzled Skipper and it was pleasing to see them flying in decent numbers distributed widely across the site. The adults were flying late in the season, and this is probably due to the exposure to the elements the site experiences. This factor almost certainly contributes highly to the habitat remaining Good in places with no obvious ongoing management. There is great potential across the site where Good habitat condition for Grizzled Skipper can be created; fine tuning verge mowing and targeted grazing during the winter months in the fixed dunes to significantly reduce sward height and will help enormously. Some early conversations with staff working at the site indicate a willingness to help. It is hoped that plans to improve habitat condition for the butterfly can be drawn up by BC in consultation with the landowner and QinetiQ biodiversity committee in the near future.

## Recommendations

- Further engage with the landowner (QinetiQ) and the Biodiversity Committee regarding Grizzled Skipper presence and habitat requirements.
- Discuss opportunities for the site management plan to contain Grizzled Skipper focussed prescriptions to be agreed through collaborative decision making. Particular consideration to be given to the grazing of the compartments (particularly increased levels in the winter months the control scrub and create a more structured sward with increased bare ground) and the wider site as well as the implementation of a more favourable verge cutting regime.

## 8.7 Pembrey Aerial Firing Range

### Adult surveys

BC Staff undertook two site visits in 2023, on 21<sup>st</sup> May and 28<sup>th</sup> May. The weather was sunny on both dates but more windy than ideal on 28<sup>th</sup> May. On 21<sup>st</sup> May, it was sunny with occasional cloud cover, but this lifted by the afternoon, and the breeze was very light. On 28<sup>th</sup> May, it was sunny all day, but the wind was moderate and from the north making conditions poor in exposed areas. Although there were a number of places where good habitat was sheltered from the wind where other butterfly species, including Dingy Skipper, were flying, no Grizzled Skipper were recorded on either date. This was disappointing

since the second visit came in between two visits to MoD Pendine where sightings were frequent, despite habitat looking like a match to good habitat at the adjacent site.

A map of BNM Grizzled Skipper records for Pembrey Aerial Firing Range and Pembrey Forest is provided in Figure 26 below. A larger version of the map is provided in Appendix 10, Map 1.

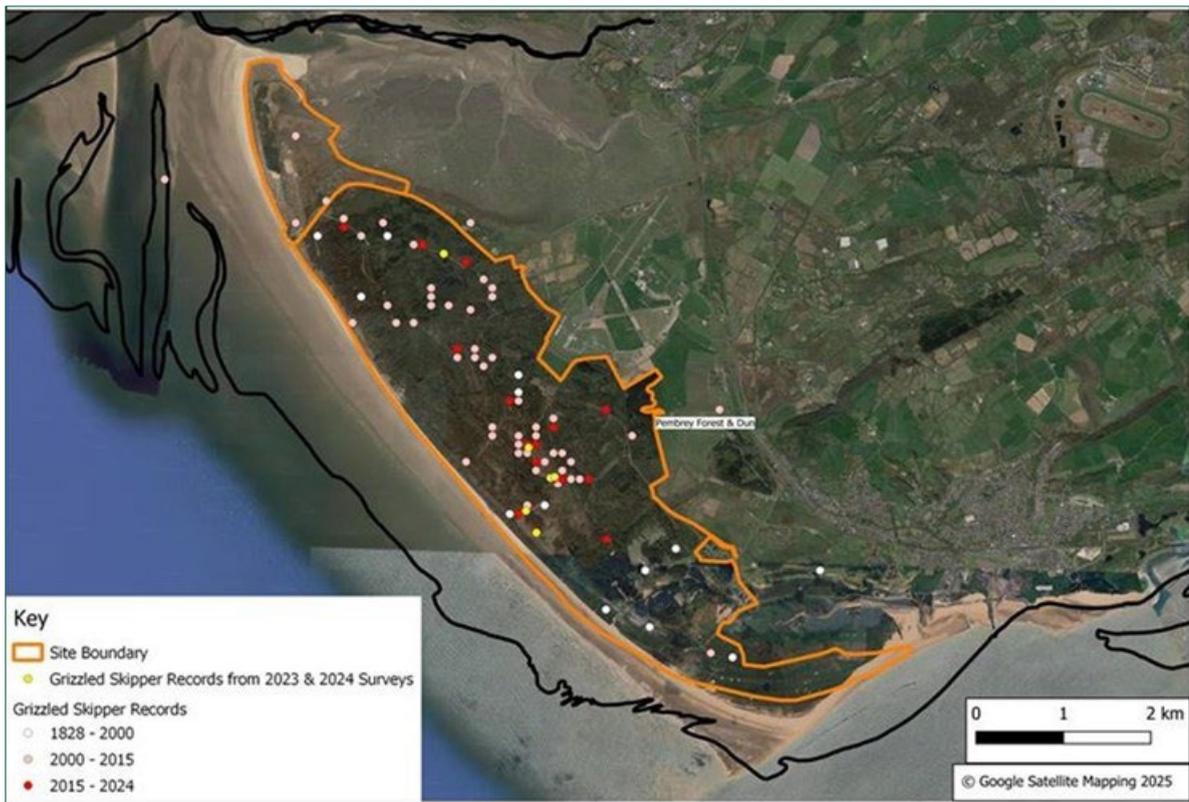


Figure 26. BNM Grizzled Skipper Records for Pembrey Aerial Firing Range and Pembrey Forest.

## Butterflies for the New Millennium (BNM) data

BNM records show the first record for Grizzled Skipper at the site to be from 1986 (single individual) with the only other records from 2005 and 2006 with a maximum of nine individuals recorded in both years. Prior to the 2023 survey, there have been no known surveys since 2006 with the exception of a BC survey in 2012 in poor weather. The 2014 dossier stated that the site was likely to have a small colony which is part the wider Pembrey Forest and Dunes colony.

## Habitat extent & condition assessment

A map showing the habitat condition mapping for Pembrey Aerial Firing Range is shown in Figure 27. A larger version of the map is provided in Appendix 10, Map 2.



Figure 27. Grizzled Skipper Habitat Condition Assessment for Pembrey Aerial Firing Range.

A Site Survey Form from the 2023 survey is provided in Appendix 14, Form 7. Table 19 provides approximate figures for habitat condition extent.

Table 19. Habitat Condition (hectares) for land surveyed at Pembrey Aerial Firing Range.

Condition	Area in hectares (ha) of site surveyed	Area as a percentage of site surveyed
Good	9.23	7.44
Fair	49.67	39.74
Fair & Poor	3.52	2.81
Poor	62.47	49.99
<b>Total</b>	<b>127.64</b>	<b>100.00</b>

The MoD owns roughly 180 ha of land found immediately north of Pembrey Forest. The habitat is a mixture of mobile and fixed dunes, saltmarsh, scrub and unimproved limestone grassland. 127 ha was surveyed in 2023. Similarly to MoD Pendine, the land at Pembrey Aerial Firing Range is used as a firing range where live ordnance is a very real Health and Safety risk. Before access to the site was allowed, a site induction was carried out.

The site is found between MoD Pendine and Pembrey Forest, which are two sites where Grizzled Skipper was found on the wing during the 2023 surveys. It was therefore somewhat surprising that Grizzled Skipper was not found the wing during either visit despite there being Good habitat available. It is possible that the surveys were conducted a little bit late for this site.

The site is quite similar to MoD Pendine in that a variety of habitats are present, but the sites differ in that there are far fewer isolated buildings and roads at Pembrey Aerial Firing Range. Therefore, the transition zones between hard standings and the fixed dune system that offered some Good habitat is missing here. Nevertheless, approximately 9 ha of Good habitat was present, and it would be a surprise if Grizzled Skipper was not still using the site in small numbers. There were a few areas where the habitat was in Good condition for Grizzled Skipper. At almost the northern most point of the site, the dunes were semi-mobile. Lots of Dewberry was available and bare ground with scattered dense patches of Marram grasses with Dune Pansy *Viola tricolor* and Common Bird's-foot-trefoil scattered around. Various depressions in the dunes here were sheltered from the breeze and held Dingy Skipper and Common Blue.

Just a little further south, one of two areas that had scrub removed in recent years is present. This area was rich in Dewberry and flowering plants with taller grasses with seed heads and lots of bare ground. This area was just becoming Good and will probably improve further over the next five to ten years as the vegetation establishes itself further.

The fixed dune system that forms the spine of the site on the western side was made up of two tall ridges running North to South. There was a nice strip of transition zone on the eastern side of the dune system adjacent to the major dune slack also running North to South for more than half the length of the site. In this area there was occasional scrub, with lots of bare ground and flowering plants. Marram and other taller broad grasses were thinly distributed here and there was lots of Dewberry, with Occasional Strawberry and Creeping Cinquefoil.

In the south-western side of the site, there was an area of ground where scrub had been removed recently which had produced lots of bare ground. Scrub was in patches and floristically this was the richest area of good habitat. Wild Strawberry was scattered between Abundant Dewberry, with Agrimony and Creeping Cinquefoil also present. Lots of Common Bird's-foot-trefoil and Kidney Vetch occurred in patches here too. The slightly distracting presence of ammunition cartridges and shells littered this area too. The fixed dune system here provided lots of deep depressions where butterflies were nectaring and sheltering from the breeze. This area was probably the most likely place within the site to hold breeding Grizzled Skipper and was checked carefully on both visits, but none was recorded.

There is only one main track on this site which connects the observation towers and compound. It is situated at the south of the site but runs southwest to northeast and doglegs around to the east. A significant section of this road sits on an embankment that raises the road about the wetter surrounding area which is dominated by Creeping Willow *Salix repens*. On the embankment, Wild Strawberry is abundant with Common Birds-foot-trefoil mixed in; there are lots of bare sections. It might be that this thin strip is not quite wide enough to attract Grizzled Skipper to breed but the habitat condition otherwise is Good here.

Elsewhere on site away from the large central patch of mature scrub with Willow, Alders, etc. and saltmarsh (area in east of site not mapped due to unsuitability), there is a very

open and short feel to the vegetation. This is a result of regular mowing with a tractor and also the flooding that seems to cover a large area of the site from winter into early spring. The central areas are devoid of food plants but are floristically with orchids and bird's-foot-trefoil.

## Habitat management assessment

Pembrey Aerial Firing Range is grazed all year by cattle; they appear to congregate in the vicinity of the pool at the far end of the south-eastern arm of the site. It seems that the whole of the site is open to cattle grazing where hydrology allows; rabbit grazing is also evident throughout the site. If large scale scrub clearance work, like the one that took out two big blocks of scrub in recent years, is likely to occur at regular intervals then this operation will create new habitat.

The surrounding areas for the main targets used for fighter jet training, that is positioned centrally in the site, is cut with a tractor. Given the floristic richness of this area, it seems unlikely that these activities occur more than a handful of times a year and probably vary from year to year based on how quickly vegetation grows in this area. It appears that a wet winter, which likely floods the site in places for prolonged periods, contributes to how regularly the central areas are cut. Some areas immediately around the targets are kept as bare sand.

It seems unlikely that a habitat management plan would lead to real changes being made to focus on making the habitat better for Grizzled Skipper. Indeed, the future of the areas found to be in Good condition will rely on the exposure to the weather the site experiences to slow succession to scrub in time. No discussions have yet been made with the landowners regarding a habitat management plan, but it is hoped that BC will be able to take this conversation forward in the future.

## Discussion

This site is fully designated as a SSSI (Arfordir Pen-bre / Pembrey Coast SSSI) within a much larger area. There is a mixture of habitats found on site including calcareous grassland, scrub and saltmarsh. The site visits in 2023 found Good habitat available but recorded no adults. This was somewhat surprising since Grizzled Skipper was present on the wing at adjacent sites (Pembrey Forest and MoD Pendine) during visits that were conducted within a couple of days of each visit. The conditions on the day of the visits were also good. It is considered likely that the butterfly still persists at the site and is part of the same population at Pembrey Forest.

No dialogue has yet been entered into with the landowner about maintaining existing Good habitat conditions for Grizzled Skipper or turning the abundant Fair habitat condition into Good where that might be worthwhile. The overriding feeling following the visits there is that Good habitat will remain at Pembrey Aerial Firing Range despite lack of habitat management focussed on the butterfly, and it is also likely that the landowner would not be willing to introduce changes to the current maintenance activities to avoid sensitive work where unexploded ordnance is a major concern. The visits conducted in 2023 have allowed Butterfly Conservation to re-establish communications with the landowner of this

important site and it will serve as a good foundation to make annual visits to the site for one of our priority landscapes.

## Recommendations

- Discussion with landowners regarding Grizzled Skipper presence, habitat requirements and opportunities for inclusion of favourable management practices for the butterfly into site management regimes including maintaining habitat connectivity with the Pembrey Forest population.
- Repeat survey visits to determine species presence / absence at the site.

## 8.8 Pembrey Forest

### Adult surveys

Two BC Staff undertook a single site visit in 2023, on 17<sup>th</sup> May. The weather was a little cooler than ideal with a max temp of 17°C. The conditions remained cloudy with short intervals of sunshine. The breeze was negligible and when the sun came out it felt warm. The 2023 visit focussed on visiting as many of the timed transect locations as possible to assess their condition and occasionally walk a little further into the adjacent areas to look for adults on the wing and suitable habitat. On this visit, a total 12 adults were seen and these sightings were split between five locations across the site. Of the five locations, three where areas where timed counts had been undertaken in the past. In 2024, three visits were undertaken on 16<sup>th</sup> & 20<sup>th</sup> May and 21<sup>st</sup> June; a total of three Grizzled Skipper were recorded from two locations on 20<sup>th</sup> May with no records from the other dates. Access around the forest was impeded in 2024 due to heavy rain; the 'Butterfly Ride' was flooded and many of the surrounding roads were not passable via vehicle.

Timed counts have not been taken for a few years but, as a result of this survey, it is hoped that a team of volunteers and BC staff will be able to start them again, building the existing data run for the site, contributing to the production of a Wales trend for the butterfly and informing site management decisions.

An additional visit was made into an area which forms part of the Pembrey Forest footprint that is adjacent to Pembrey Aerial Firing Range. The visit took place after the Pembrey Aerial Firing Range visit on 21<sup>st</sup> May and weather conditions remained good. However, no adults were found on the wing in Fair habitat. No visit was made to the adjacent Pembrey Country Park where there is a record of two Grizzled Skipper in 2019.

A map of BNM Grizzled Skipper records for Pembrey Aerial Firing Range and Pembrey Forest is provided in Figure 28. A larger version of this map is provided in Appendix 10, Map 1.

## Previous Grizzled Skipper records & monitoring data

BNM data shows the first records of the butterfly in the forest to be from 1983, with almost annual records since that time. The butterfly appears to be widespread along many of the forest rides and clearings, with records concentrated where better condition habitat occurs. The highest number of Grizzled Skipper recorded on a single date is 40 individuals in 2006; since 2006, 25 individuals were recorded in 2014 with the remainder of the records fewer than 14 individuals.

Butterfly Conservation established monitoring for the Grizzled Skipper in Pembrey Forest in 2009 supported by funding from Forestry Commission Wales and subsequently NRW. Funding ceased in 2016 and since then BC have continued the monitoring on an ad hoc basis when staff and financial resources have allowed. One 'key area' and five 'surveillance areas' have been monitored for the butterfly by timed counts since 2007 with the most recent count data from 2021. The locations of these are shown in Appendix 10, Maps 4 to 6.

The timed count monitoring data is provided in Appendix 9, Table 1 and Figure below; a slight decreasing trend is shown.



Figure 28. BNM Adult Grizzled Skipper Records for Pembrey Aerial Firing Range and Pembrey Forest.

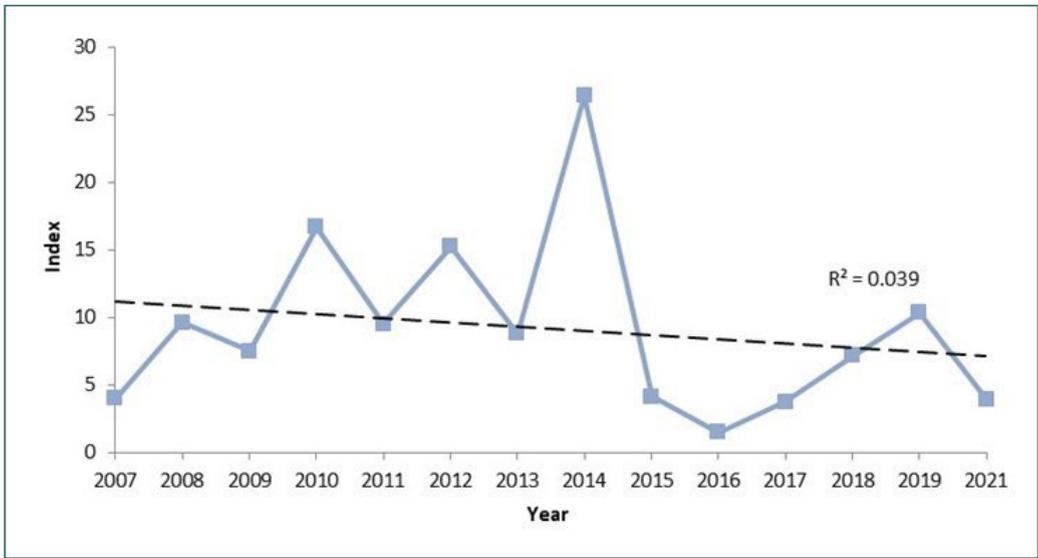


Figure 29. Population trend for Grizzled Skipper at Pembrey Forest (2007-2021).

## Habitat extent & condition assessment

A map showing the habitat condition mapping Pembrey Forest is shown on Figure 30 below. A larger version of the map is provided in Appendix 10, Map 3.



Figure 30. Grizzled Skipper habitat condition assessment for Pembrey Forest.

Table 20 provides approximate figures for habitat condition extent.

Table 20. Habitat Condition (hectares) for land surveyed at Pembrey Forest.

Condition	Area in hectares (ha) of site surveyed	Area as a percentage of site surveyed
Good	15.98	20.96
Fair	38.39	50.38
Fair & Poor	13.11	17.21
Poor	8.72	11.43
<b>Total</b>	<b>76.2</b>	<b>100</b>

The habitat condition assessment for Pembrey Forest was completed as far as time and weather conditions allowed; flooding of roads and tracks on a number of visits impeded access along access routes, preventing comprehensive mapping of the site. The majority of Pembrey Forest is unsuitable for Grizzled Skipper, with a conifer plantation dominating what would previously been an extensive area of dunes. The butterfly uses the limestone grassland in the dunes and open areas supporting larval foodplants along the road verges, road junctions as well as along rides and in clearings within the plantation. Very few areas within the forest supported Good Condition habitat (15.98 ha), with the majority of the Fair (38 ha) and Fair/Poor habitat (13 ha) suffering from scrub encroachment. Areas considered to have supported some of the best habitat in the past e.g. the timed count areas, still supported Good Condition Habitat but there suffering from scrub encroachment and shading. However, these areas are small, require regular management to maintain habitat quality and are low-lying and therefore subject to flooding.

## Habitat management assessment

NRW and Pembrey Conservation Trust (PCT) have undertaken management work in key locations in the forest for priority butterfly and moth species for many years, notably with BC support since 2009. Annual site meetings between BC, NRW and PCT occurred until 2016, with more ad hoc advice provided after this date. Focus has largely been on Grizzled Skipper, Dingy Skipper, Small Blue *Cupido minimus* and Marsh Fritillary *Euphydryas aurinia*, with Small Pearl-bordered Fritillary *Boloria selene* and White-spotted Sable Moth *Anania funebris* also given appropriate consideration. Management has largely concentrated on scrub management including hand-pulling of young Sea Buckthorn on ride-side sand banks. The aim of the management is to maintain and increase the number and extent of open areas in the forest which provide a combination of shelter, roosting sites and early successional vegetation supporting abundant larval foodplants. Areas supporting suitable habitat for Grizzled Skipper and/or other priority Lepidoptera present on the site should be managed on rotation, ensuring that they are well-linked to nearby suitable habitat through appropriate trackside management. During the 2023 and 2024 surveys, recent management of some of the key areas was evident, however, presumably due to a lack of time, cut scrub had not been removed from the areas, reducing the positive impact of this management.

During 2023 and 2024, some initial discussions have taken place with Hannah Shaw of NRW and also the PCT volunteering group that works on the adjacent Pembrey Country Park. It is hoped that some scrub removal and tree felling will open up the site a bit more at locations where timed counts have taken place in the past.

## Discussion

Pembrey Forest does not have a designation, but NRW appears keen to manage the site to maintain its high biodiversity value where possible. The area must have been an extremely impressive sand dune system, with dune slacks and mobile sand banks, before it was converted to a conifer plantation. Some of the original features are still very much evident and the habitat benefits from the complex of tracks and paths, plus a butterfly ride which breaks up the canopy. In some parts, the crop has failed or thinned naturally, and it is in these areas where some of the best conditions are found.

Grizzled Skipper is widespread at a low density along many of the forest rides and clearings and is considered to be part of the same population on the adjacent Pembrey Dunes, Pembrey Aerial Firing Range to the north and also potentially Pembrey Country Park to the south-east.

In previous years, timed counts for Grizzled Skipper were performed at a handful of locations but these have not been undertaken since 2021, with a slight decreasing trend evident up to this point. These sites were visited in 2023 and, although timed counts were not made, wider searches were done from them. Three of the established timed count locations had Grizzled Skipper present in low numbers but all were suffering from scrub encroachment and also affected by a taller canopy nearby. Butterfly Conservation will look towards re-establishing the timed counts as an annual activity when resources allow.

The majority of Pembrey Forest is unsuitable for Grizzled Skipper due to it being a plantation but there is much scope to extend, enhance and connect suitable habitat on the site. One key consideration will be climate change, with increased precipitation making the forest more susceptible to flooding. Areas supporting Good condition habitat for the butterfly would benefit from felling and scrub clearance works to push the boundary of suitable habitat onto higher ground, thus ensuring the persistence of accessible breeding habitat throughout periods of inundation.

It is encouraging that dialogue has already been established regarding habitat management for Grizzled Skipper and there is a willingness to act. Funding will be the biggest obstacle to delivering the habitat work that will be necessary, but Butterfly Conservation will work with NRW, Pembrey Country Park volunteers and its own volunteers to prioritise bringing the condition of the timed count locations back into favourable condition as a priority.

## Recommendations

- Re-instate annual timed counts of Grizzled Skipper in the forest.
- Complete habitat condition mapping for areas inaccessible in 2024 due to flooding.
- Clear scrub from all Grizzled Skipper monitoring areas (key site and surveillance sites) as a priority and ensure cut scrub is removed from the areas.
- Explore opportunities to clear taller trees adjacent to the monitoring areas to reduce shading and to extend clearance onto higher ground where possible to ensure the persistence of accessible breeding habitat during periods of inundation.

- Maintain habitat connectivity between Pembrey Forest and Pembrey Aerial Firing Range.
- Continue discussion with NRW and Pembrey Conservation volunteers regarding the production of a habitat management plan for the site to facilitate delivery of conservation action for Grizzled Skipper and other priority Lepidoptera present.

## 8.9 Merthyr Mawr Warren

### Adult surveys

BC Staff made two site visits in 2023, on 18<sup>th</sup> May and 14<sup>th</sup> September. On 18<sup>th</sup> May, max temp 19°C during a mostly cloudy day with regular intervals of sunshine, some lasting 20 mins or more. The wind increased throughout the day but never more than light in strength. Dingy Skipper and Brown Argus *Aricia agestis* seen frequently throughout the day. In total, seven Grizzled Skipper were seen across the site from five areas. The sightings were, in comparison to previous records, found away from regular hotspots but that is likely to be due to the site having a long emergence period starting in the second half of April. Earlier in the year, Grizzled Skipper tends to favour Good habitat with plenty of shelter close to the car park. The second visit on was carried out outside the flight period for adults and habitat condition mapping was the focus for the day

In 2024, a single visit was made on 10<sup>th</sup> May; a total of eight Grizzled Skipper were recorded from six locations. These locations were in the extreme east of the site and in the west of the site, where there have been no records since 2013.

A map of BNM Grizzled Skipper records for Merthyr Mawr Warren is provided in [Figure 31](#) below. A larger version of the map is provided in Appendix 11, Map 1.



Figure 31. BNM Adult Grizzled Skipper records for Merthyr Mawr Warren.

## Butterflies for the New Millennium (BNM) data

BNM data gives the first record of Grizzled Skipper from Merthyr Mawr Warren as 1960, with regular, largely annual, records since then. The butterfly is present across the entire dune system, although it is found predominately in the southern half of the site, at a low density. The highest number of individuals recorded on any one date was 61 adults recorded on 22<sup>nd</sup> May 2012 as part of BC's surveys to inform the 2014 status assessment. There are only seven dates in the BNM where records from a single date reach double figures, and only three of these dates producing figures of 20 or more (highest count of 38).

## UK Butterfly Monitoring Scheme (UKBMS) data

A transect was established at Merthyr Mawr Warren in 2014; the transect is 1928 m and comprises six sections. There are data for this transect for 2014 to 2019, but none for 2020 to 2024, so it appears that this transect may have ceased. The highest count recorded on this transect was twelve individuals in 2018 with counts for the remaining years of six or less. A map of the transect route is shown in Figure 32 and transect plots in Figure 33 below.



Figure 32. UKBMS transect route at Merthyr Mawr Warren (Merthyr Mawr NNR).

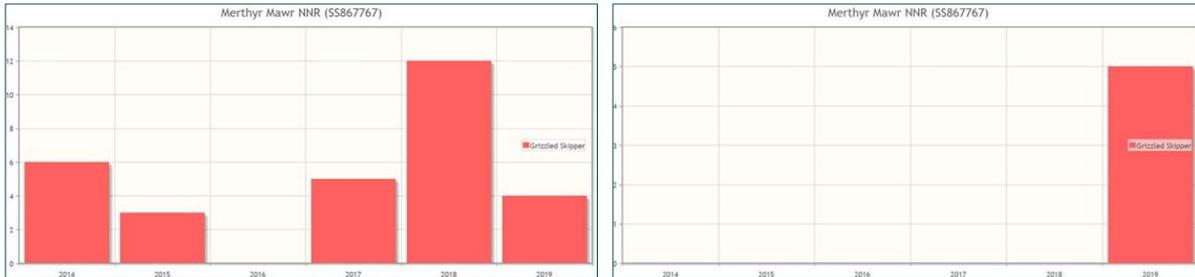


Figure 33. Grizzled Skipper plots for Merthyr Mawr NNR transect showing annual counts (left) and annual index (right).

A second transect was established in 2018 by a volunteer, with BC support, to gain increased transect coverage of this extensive population. The transect is a linear route of 867 m and comprises three sections. The transect was walked in 2018, 2019, 2020 (summer only) and 2021 but from 2022 to 2024 very few walks were undertaken. The highest count of Grizzled Skipper on this transect was in 2018 with 28 recorded overall (peak count 7). Counts in the last three years were very low (<10) but this may be due to insufficient coverage of the flight season and indeed only 2018 and 2019 have enough data for index generation. A map of the transect route is provided in Figure and transect plots in Figure 35 below.

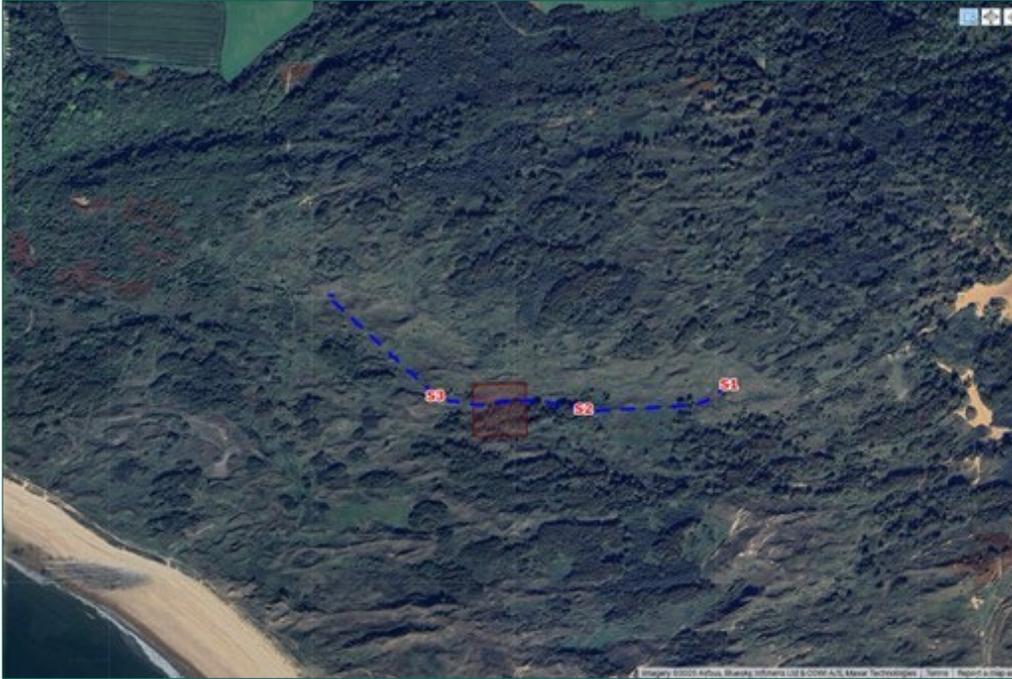


Figure 34. UKBMS transect route at Merthyr Mawr Warren (Merthyr Mawr NNR2).

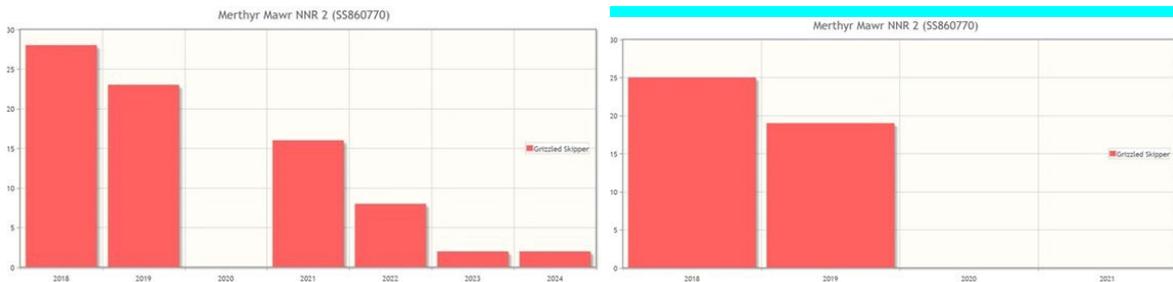


Figure 35. Grizzled Skipper plots for Merthyr Mawr NNR2 transect showing annual counts (left) and annual index (right).

## Habitat extent & condition assessment

A map showing the habitat condition mapping for Merthyr Mawr is shown in Figure . A larger version of the map is provided in Appendix 11, Map 2.



Figure 36. Grizzled Skipper habitat condition assessment for Merthyr Mawr Warren.

Table 21 provides approximate figures for habitat condition extent.

Table 21. Habitat Condition (hectares) for land surveyed at Merthyr Mawr NNR.

Condition	Area in hectares (ha) of site surveyed	Area as a percentage of site surveyed
Good	40.06	22.88%
Fair	121.67	69.48%
Poor	13.39	7.65%
<b>Total</b>	<b>175.12</b>	<b>100%</b>

Merthyr Mawr Warren is a large site of approximately 368 ha and is the highest sand dune system in Wales. Habitats present include areas of sand settled on limestone cliffs and a range of dune habitats, from bare sand to stabilised dunes and slacks, dune woodland and scrub. Extensive areas of semi-fixed and fixed species-rich dune grassland are also present. Many areas are relatively open reflecting heavy grazing by rabbits, particularly at the southern end of site. Rank fixed dunes occur to the north.

Approximately 175 ha of the site was assessed for habitat condition; the northernmost dunes were excluded as they were considered too scrubbed up to be suitable for Grizzled Skipper. There is also no habitat assessment information for the western part of the site which is known to support suitable habitat. The majority of the mapped habitat (69%) was classed Fair condition (121 ha) with 23% (40 ha) considered to constitute Good habitat with the remaining 13 ha (7%) considered to be of Poor suitability for the butterfly. The main larval foodplants present are Wild Strawberry which is Abundant and Agrimony which

is Occasional in occurrence. Bramble is also abundant throughout the site, with Salad Burnet also present but Rare.

The main factor limiting habitat suitability in the Fair areas is scrub encroachment and the development of a closed or rank sward due to a lack of disturbance. The Good condition areas where predominantly those where weather conditions and/or path and bridleway use have resulted in the breaking up of the path side vegetation, creating bare ground. There were also areas where Sea Buckthorn had been taken out which will likely develop into Good condition habitat in time.

## Habitat management assessment

Merthyr Mawr Warren is an NNR, SSSI and SAC. Management responsibility for the NNR reverted back to the Merthyr Mawr Estate when NRW's 30 year management lease ended on 31<sup>st</sup> December 2020. Since this time, NRW has continued to work at Merthyr Mawr through the Sands of LIFE dune rejuvenation project. Succession to scrub is the major concern for the site and large parts of the site are enclosed by stock-proof fencing. The fencing is damaged in places where the public have cut or trampled down the netting along previously well used paths, and it is not clear when the stock will return to the area. There has been no active grazing for a few years, but NRW is currently in dialogue with the landowner; it is hoped that some progress can be made, and that the fence system is repaired and cattle reintroduced to the area. Grazing is not the only way in which habitat suitability for Grizzled Skipper can be maintained and enhanced, as Good condition habitat occurs outside the enclosed grazing area, maintained by rabbit grazing, access and weather conditions. It would be possible to create further bare ground habitat through the use of machinery to complement any future grazing regime.

## Discussion

This site is fully designated as SSSI (Merthyr Mawr SSSI). It has a mixture of habitats that you'd expect to find in a coastal dune system of its size, with unimproved calcareous grassland, scrub and woodland dominating. There are also areas where stone has been quarried in the past.

The site is well watched by butterfly enthusiasts and is recognised as the best location in South Wales to see Grizzled Skipper early in the season; the first sighting in 2023 coming in mid-April. These early sightings come from a relatively sheltered part of the site on the eastern boundary, with tall dunes with patchy scrub cover among vegetation with a varied structure. Bare ground is common and the high footfall from the car park nearby maintains bare sand and locally mobile sand banks as paths criss-cross the area. This part of the site is very well recorded. Broadly across the site, scrub encroachment and succession are a concern with Sea Buckthorn, Willow, Alder, etc. starting to become a problem. Some recent works have removed areas of scrub but grazing by cattle seems to have been suspended recently.

Anecdotally, the distribution of Grizzled Skipper is spreading out into areas closer to the coast and this pattern can be seen by looking at records from 2023. There is a lot of Good habitat available and also Fair habitat that with some targeted grazing would turn quickly

into Good habitat. Butterfly Conservation would welcome the opportunity to work with NRW and Merthyr Mawr Estate to inform a management plan for the site that will benefit Grizzled Skippers and other invertebrates. The population does appear to be quite isolated with past records from Parc Slip (5 km north, last record from 2004) and Alun Valley likely relating to colonisation and temporary establishment from the Merthyr Mawr population.

## Recommendations

- Determine whether the initial transect established on 'Merthyr Mawr NNR' is still being walked and if not support volunteers to recommence visits.
- Encourage full coverage of the Grizzled Skipper flight season on the 'Merthyr Mawr NNR2' transect.
- Complete habitat condition mapping for the western part of site.
- Re-instate an appropriate grazing regime to the site to manage succession to scrub and create a more varied sward with increased bare ground.
- Explore bare ground creation by mechanical means to complement any future grazing regime.

## 8.10 MoD Caerwent

### Survey background

Early contact was made with the landowner (MoD) in order to arrange survey visits in 2023 but, due to the volume of training activities already booked in, access wasn't permitted until 13<sup>th</sup> June, which was considered likely to be outside the butterfly's flight period. The 13<sup>th</sup> June 2023 was sunny with maximum temperature of 23°C and light wind from east. No adults were seen on the wing and the flight period had almost certainly finished at this site. Indeed, Marbled White *Melanargia galathea* was already on the wing in small numbers indicating how far along the season was locally. The 2023 survey visit therefore focussed on mapping habitat condition and assessing site management. Only roughly half of the approximately 235 ha MoD Caerwent Training Area was surveyed during 2023 which included three of the four Dinham Meadows SSSI compartments ([Figure](#) ).

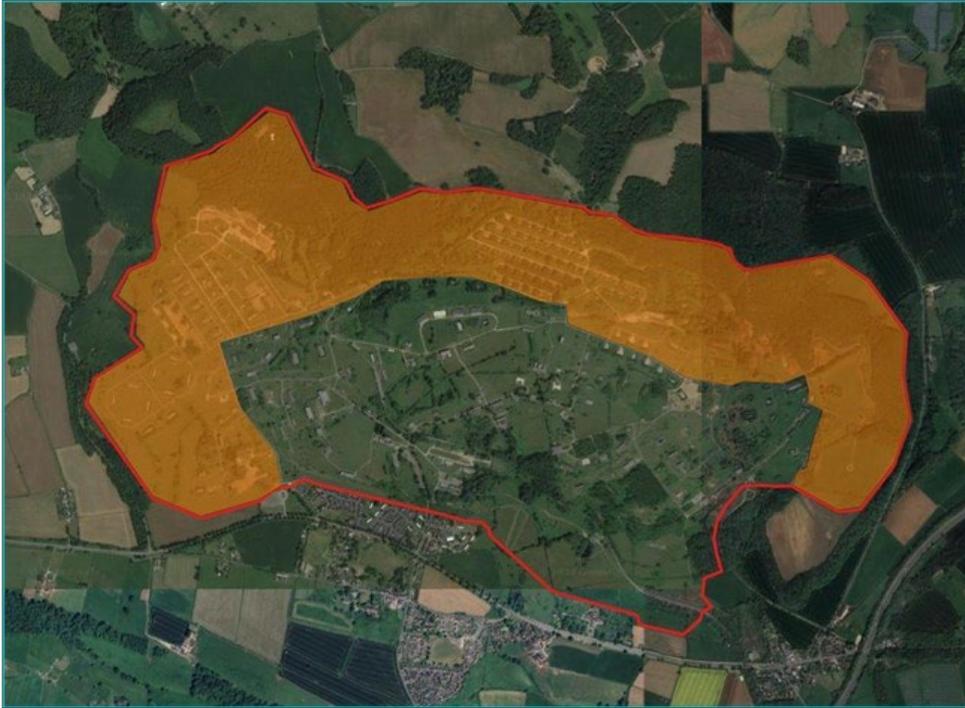


Figure 37. The extent of area covered at MoD Caerwent during Grizzled Skipper surveys in 2023 and 2024.

The results from the 2023 survey helped to create a habitat condition map which was used to choose areas to target for survey in 2024 (see Hipkin, 2025 for more detail). Priority was given to areas where habitat conditions were considered Good for Grizzled Skipper and aimed to prove that the butterfly was still present, as the most recent records from the site were from 2019 (but it was unlikely that there had been any surveys since this time). Any areas found to support Grizzled Skipper were also subject to further consideration, such as protecting the location from habitat loss and exploring options to increase the availability of Good habitat in adjacent areas.

The data gathered in 2024 was mainly focused on Grizzled Skipper presence and habitat management recommendations. Zones were created and mapped out to record and illustrate these data. The main factor for creating a zone is to demonstrate the significance to the current Grizzled Skipper population. Zones contain important metrics found to be consistent within the zone but different to the adjacent zone. A list of important metrics used are shown below:

- Grizzled Skipper presence;
- Habitat quality;
- Grazing pressure;
- Potential to create better habitat.

Each zone was allocated a number, and Appendix 13, Table 4 shows a map of all eleven zones and a table of Target Notes that were generated from the site visit on 17<sup>th</sup> May 2024.

## Adult surveys

As already detailed, the 2023 survey was undertaken after the Grizzled Skipper flight period had finished. In 2024, a site visit was also made by Mark Hipkin, Alan Sumnall and George Tordoff on Friday 17<sup>th</sup> May. The morning was partially cloudy but with strong sunshine. The cloud cleared by late morning and the skies remained clear until late afternoon. The maximum temp was 20°C with a light southerly wind (5 mph).

In total, 28 Grizzled Skipper adults were seen on the wing and nectaring, in three hotspots, see Figure and 39 below.

## Butterflies for the New Millennium (BNM) data

BNM data shows that Grizzled Skipper was first recorded here in 1993, and has been recorded almost annually since then. The highest number recorded on a single visit was 35 on 23<sup>rd</sup> May 2018 and in the majority of years there is at least one date on which numbers of the butterfly reach double figures.

Unfortunately, due to access constraints and staff resource it has not yet been possible to explore opportunities for establishing monitoring at the site.

A map of BNM Grizzled Skipper records for MoD Caerwent is provided in Figure 40. A larger version of the map is provided in Appendix 12, Map 1.



Figure 38. The distribution of adult Grizzled Skipper at MoD Caerwent in 2024, plotted as individuals.



Figure 39. The distribution of adult Grizzled Skipper at MoD Caerwent in 2024, plotted as clusters.



Figure 40. BNM Adult Grizzled Skipper records for MoD Caerwent.

## Habitat extent & condition assessment & management assessment

As already stated, the 2023 survey visit focussed on mapping habitat condition and assessing management, with coverage of approximately half of the site.

A map showing the habitat condition mapping for MoD Caerwent is shown in Figure 41 below. A larger version of the map is provided in Appendix 12, Map 2.

Table 22 provides approximate figures for habitat condition extent.

Table 22. Habitat Condition (hectares) for land surveyed at MoD Caerwent.

Condition	Area in hectares (ha) of site surveyed	Area as a percentage of site surveyed
Good	2.83	1.23
Fair	3.47	1.51
Fair & Poor	30.0	13.0
Poor	193.0	84.2
<b>Total</b>	<b>229.82</b>	<b>100</b>

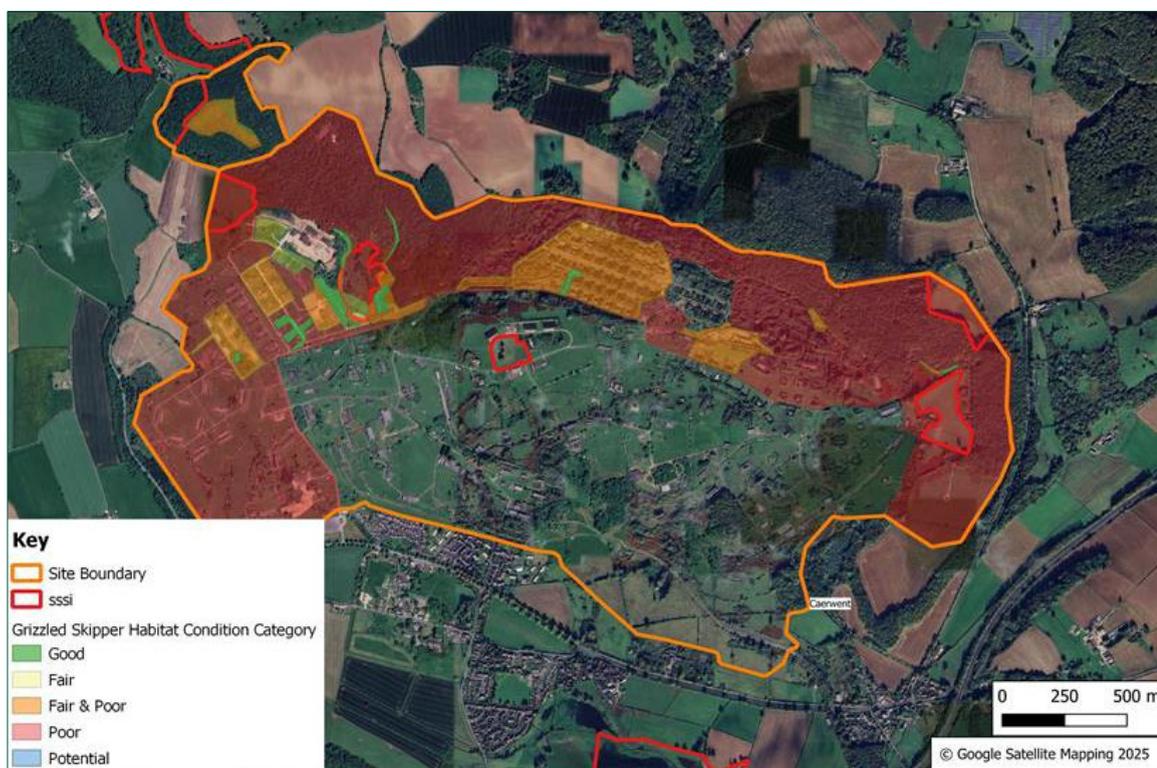


Figure 41. Grizzled Skipper habitat condition assessment for MoD Caerwent.

The majority of the habitat surveyed (84%) was classed as Poor condition for Grizzled Skipper (193 ha). These areas are dominated by coniferous and deciduous woodland but also include areas of tightly grazed calcareous grassland, with minimal sward structure, scrub and nectar present, including within the Dinham Meadows SSSI compartments. Only 2.8 ha (1%) of habitat was assessed as Good condition; this tended to be in areas where it is more challenging for sheep to access and in the fenced-off area towards the north of the site. The remainder of the habitat was classed as either Fair (3.5% / 1.5 ha) or Fair/Poor (30% / 13 ha), largely occurring in association with building and road complexes with associated steep embankments. Wild Strawberry is Frequent across the site with Agrimony and Creeping Cinquefoil Occasional. Salad Burnet (Rare) and Bramble (Occasional) are also present.

When looking at the clusters of adult Grizzled Skipper sightings in combination with locations of good habitat conditions, four main areas of significance stood out (Figure ). These areas were treated as **sections** in this site account to help focus the presentation of data and guide recommendations. Figure shows the position of the sections and identifies eleven **zones** contained within them.

Table 23. Number of Grizzled Skipper adults recorded at MoD Caerwent in 2024 and habitat condition in 2023.

Zone	Grizzled Skipper	Habitat condition
1	1	Good
2	0	Poor
3	6	Good
4	5	Good
5	0	Good
6	10	Good
7	0	Fair
8	6	Fair
9	0	Poor
10	0	Good
11	0	Fair
<b>Total</b>	<b>28</b>	-

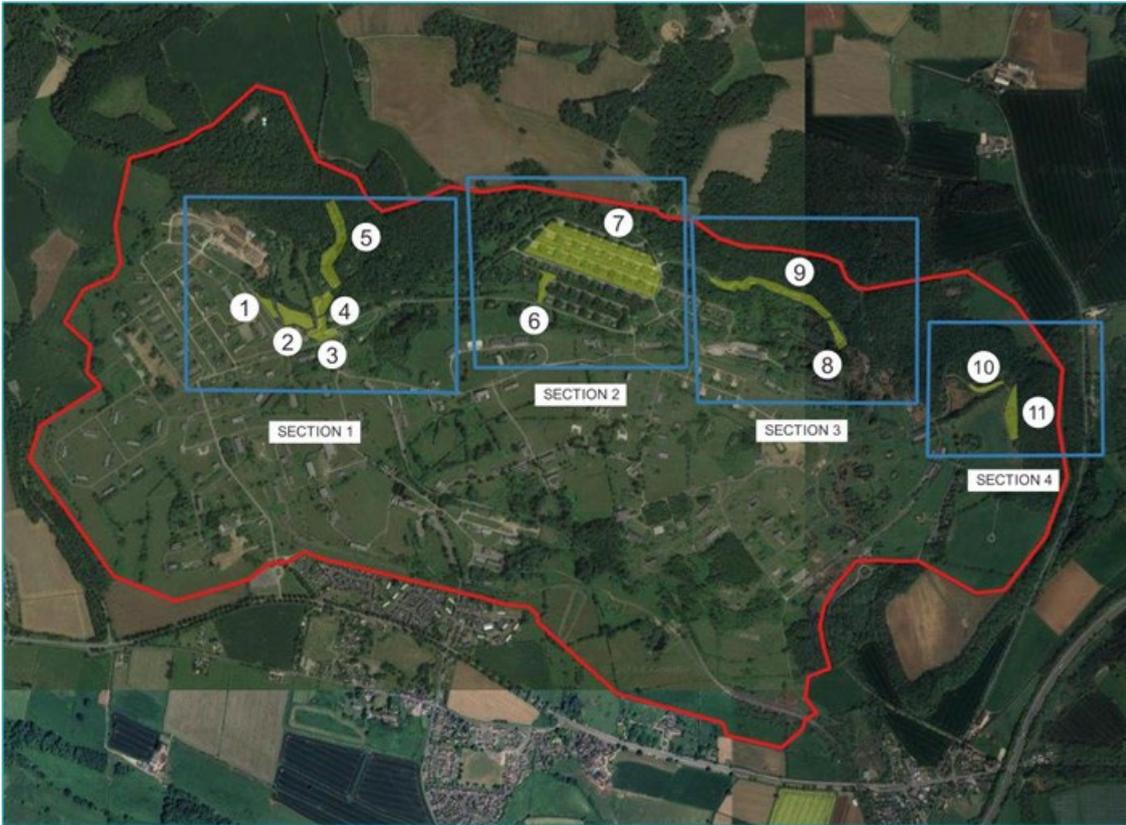


Figure 42. Sections 1 to 4 and Zones 1 to 11 at MoD Caerwent.

### Section 1

Section 1 contains five zones that were targeted for assessment in 2024 (Figure ), the most important being Zone 3 and Zone 4 where 6 and 5 adults were recorded respectively. These two zones were found to have some of the best habitat for Grizzled Skipper during the 2023 habitat condition survey. The most valuable feature shared by Zones 3 & 4 is a rocky embankment either side of the road that passes through both zones. The interesting difference between the two zones is that a cattle grid and fence form a boundary between them which means that Zone 3 holds very good habitat conditions despite it being open to the same level of grazing that has resulted in overgrazed grassland throughout much of MoD Caerwent.

Zone 4 contains a small raised area adjacent to the road which appears to be managed for scrub control. The area itself is dominated by broad grasses with some nectar sources but very little bare ground. The openness created by this managed area was having a positive impact on the extremely valuable road embankments in Zone 4 but it was felt there were options to improve this area by creating more bare ground.

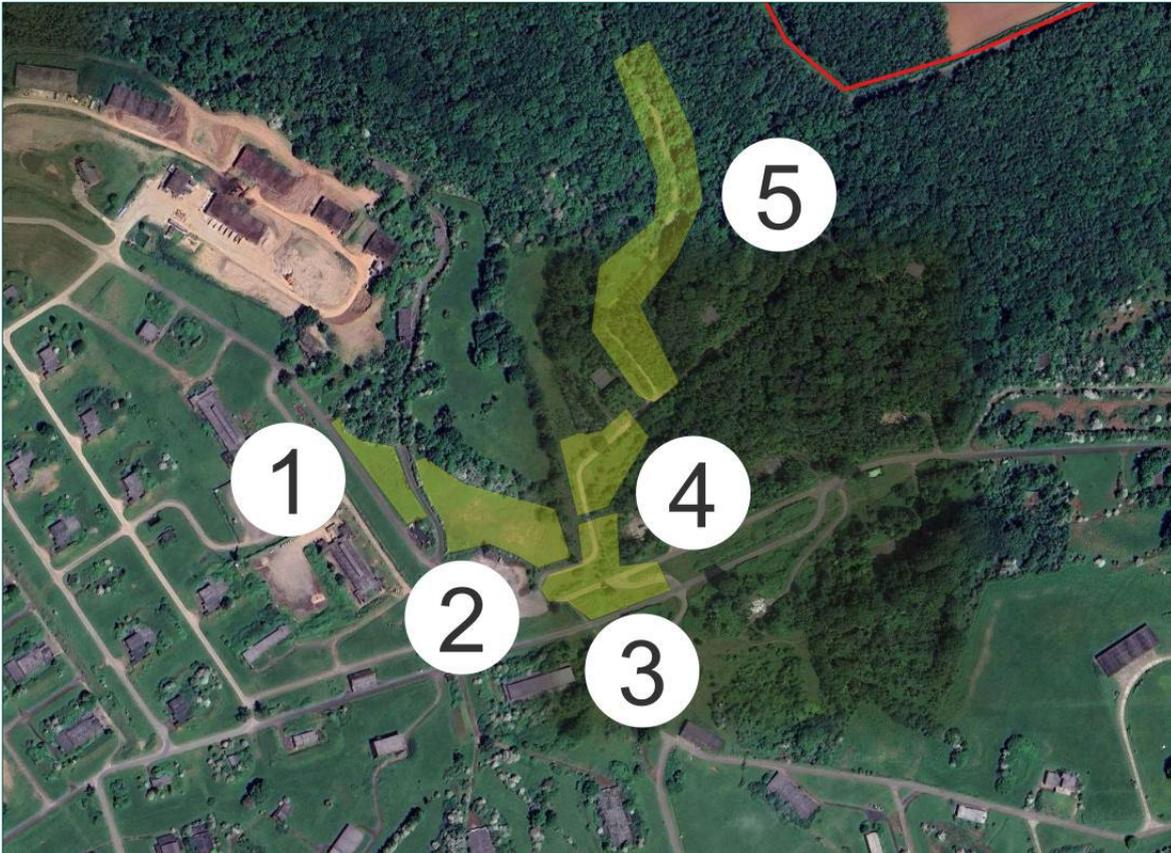


Figure 43. The five zones in Section 1 at MoD Caerwent.

Zone 1 had all the features required for it to qualify as Good habitat for Grizzled Skipper and a single adult was found nectaring during the 2024 visit. Like Zone 3, there are no barriers to prevent it from being overgrazed. Zone 1 has a good southwest facing slope and a thinly vegetated embankment that supports the road. This feature in particular was most valuable to the butterfly population. Without control over grazing in this zone, it will struggle to improve its floristic richness, but the creation of more bare ground would help.

Zone 2 is an area within one of the Dinham Meadows SSSI field complexes. When surveyed on 13<sup>th</sup> June 2023 and 17<sup>th</sup> May 2024, it was found to be a tightly grazed sward lacking in diversity or nectar sources. The zone does contain bare ground possibly as a result of poaching by cattle due to its favourable south facing slope. The habitat is currently in poor condition but given its close proximity to two extremely important zones for Grizzled Skipper, there is high potential to make improvements here.

Zone 5 differs from the other zones because it is dominated by woodland. An access track through wood creates a ride which splits Zone 5 in half running along its length. The track is conveniently climbing a south facing slope and so it gathers sunlight throughout the day. In the lower half, there is a clearing which appears to be maintained by regular scrub clearance operations. The openness created within this zone produced a valuable heat trap and there were several common species using it such as Green-veined White *Pieris napi* and Peacock *Aglais io*. However, Grizzled Skipper was not found. The managed area was generally poor in nectar sources and the sward was dominated by broad grasses. The

zone returned a score of Good overall as all the important habitat features were found present along the embankments of the track. The zone was extremely similar to parts of Pembrey Forest where Grizzled Skipper is still present in small numbers. If some additional clearings could be created as well as some fine tuning of current management, then colonisation from adjacent zones may occur.

## Section 2

Section 2 contains two zones, Zones 6 & 7, that were targeted for assessment in 2024 (Figure 44). Zone 6 supported some of the best habitat for Grizzled Skipper during the 2023 survey, and ten adults were recorded here the following year. Indeed, it supported the highest adult density across all occupied south Wales sites in 2023 and 2024. These results make it important to understand what the current management regime is for Zone 6 and how similar habitat conditions can be created nearby to allow the population to spread out. Grizzled Skipper was not found in Zone 7.

Zone 6 is a tall, steep embankment with a ridge that runs roughly north to south. The position of the ridge means that it is nicely located to catch the late spring sunshine in the morning and afternoon. The seemingly low nutrient soil that forms the bank results in a floristically rich vegetation and therefore abundant nectar sources. There are frequent patches of bare soil and areas where the vegetation cover is thin. Scrub is thinly scattered and largely missing from the zone but there is extensive scrub nearby. It is unclear whether the current habitat condition for Zone 6 is the result of specific management or a mixture of poor nutrient soils and general wider site management for the benefit of the MoD training operations. The zone is fenced off against stock that graze the wider site which certainly allows for the abundance in nectar sources and seed heads.

The adjacent Zone 7 supports a mixture of habitats. There is a complex of buildings set out in three rows, with access roads separating them. In addition to the roads, there are tall and steep embankments between the rows of buildings and these banks have potential to be improved for the benefit of Grizzled Skipper. Their south-southwest facing slopes are currently in Fair condition but there is abundance of Wild Strawberry and well-scattered scrub. The embankments are dominated by grassland but with a poor availability of nectar sources. There is also a lack of bare ground. The embankments are subject to periodic scrub management control, but it does not appear to be focussed on improving the habitat condition long-term.

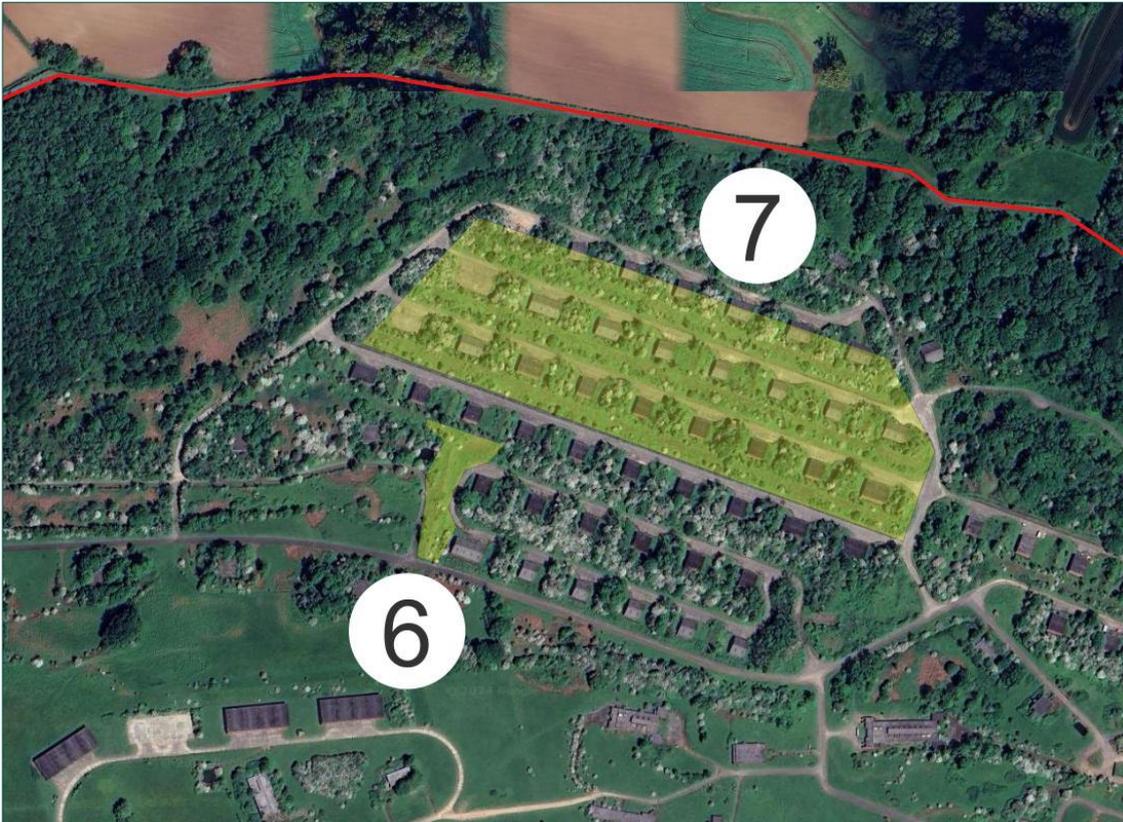


Figure 44. The two zones in Section 2 at MoD Caerwent.

### Section 3

Section 3 contains two zones, Zones 8 & 9, that were targeted for assessment in 2024 (Figure 45). The 2023 survey found the condition of these zones to be fair. However, historical records highlight that Grizzled Skipper had been seen in the vicinity of Zone 8. It was therefore pleasing that 6 adults were found here in 2024. The habitat in this section is dominated by woodland with a clearing and access road which roughly runs east to west creating an effective butterfly ride. These zones are found behind stockproof fencing and a cattle grid so benefit from avoiding the grazing pressure found elsewhere on site. Both Zone 8 and Zone 9 support an important population of Drab Looper which is extremely uncommon in Wales. The moth, the larvae of which feed on Wood Spurge, does share a requirement for clearings in woods to be maintained albeit slightly differently. Therefore, if any habitat management operations were to be taken up in this section it would be worth considering looking at creating good habitat for both species.

Zone 8 is a clearing adjacent to a single-track access road surrounded by trees. The embankment on the northern side of the road faces southwest and is open to the afternoon sun. The embankment supports an abundance of foodplants and also has a good variety of nectar sources. On the opposite side of the road, the ground falls away into a clearing which creates a good heat trap. The clearing is dominated by grassland but is not particularly rich in nectar sources, seed heads and bare ground. The clearing does have a good mix depressions and mounds which create an assortment of bank faces. On some of these faces, the sward is thin with occasional bare soil. There is very little low-level scrub with the transition between grassland and mature trees fairly abrupt. Given the lack of

grazing in this area, it is assumed that the clearing is managed regularly using brushcutters etc. Several Drab Looper adults were found flying in the clearing, with the foodplant scattered at low density along the wooded edge.

Zone 9 is continuation of Zone 8 with the single-track access road creating a ride. Zone 9 contains two buildings and an overgrown structure but doesn't have any clearings that match the one in Zone 8. The embankment on the northern side of the road contains an abundance of bare ground, foodplants and seed heads. However, there is no low-level scrub or open grassland to found here. The habitat condition for Grizzled Skipper in this zone is Poor but this could be changed to good by creating some clearings. There were more frequent sightings of Drab Looper in this zone, particularly in the vicinity of the overgrown structure. This same location held carpets of Wood Spurge.

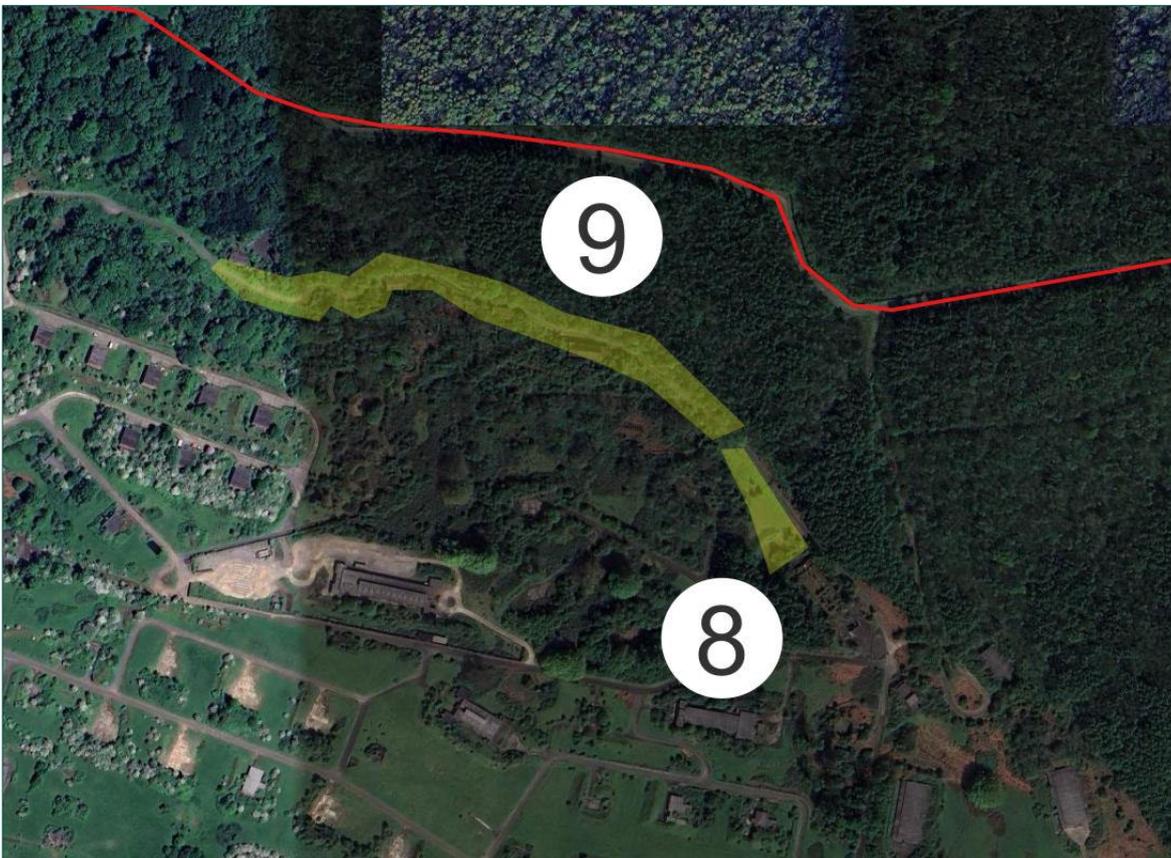


Figure 45. The two zones in Section 3 at MoD Caerwent.

#### Section 4

Section 4 contains two zones, Zones 10 & 11, that were targeted for assessment in 2024 (Figure ). Section 4, unlike the other sections, did not produce any sighting of adults during the 2024 visit. However, historical records show that adults have been observed nearby. Zone 10 was considered to have good habitat conditions for Grizzled Skipper during the 2023 RHCA survey and there are areas close by which would benefit from sympathetic management.

Zone 10 is an area of mixed scrub and woodland edge. A single-track access road passes through it which is cut into the ground and has formed a nice south facing embankment. This steep embankment contains an abundance of foodplant, seed heads and bare ground. There is frequent low scrub and nectar sources. Since this zone is small, the only feature missing is a wider area of grassland, but this zone could be important if other areas nearby are improved for the butterfly.

Zone 11 is similar to Zone 10 but with an area of grassland adjacent to the road embankment. The grassland appears to be kept open as a result of regular cutting, but this has led to it being dominated by broad grasses with few nectar sources. Foodplants, seed heads and bare ground are abundant on the embankment but do not occur in the grassland part of the zone. If it is possible to make changes to the existing habitat management for this zone, it could become Good for Grizzled Skipper.

Section 4 contains one of the Dinham Meadows SSSI field complexes. This has not been treated as a zone but if the current management plans for the fields can be changed, it would also potentially become an important area for Grizzled Skipper.



Figure 46. The two zones in Section 4 at MoD Caerwent.

## Discussion

The Grizzled Skipper population at Caerwent has been reasonably well recorded in the past. This mainly due to the efforts of a local recorder who was passionate about the site and had a good rapport with the landowner. That recorder stopped visiting the site a few years ago and no records have been made from this site since 2019. It is therefore encouraging that the 2024 surveys found the butterfly to be still present and widespread at

a low density over this large site, with the total recorded in 2024 not much lower than the highest number recorded on a single visit in previous years.

The site is an interesting mixture of habitats with calcareous grassland and woodland dominating and, as with many MoD owned land, habitats benefit from a lack of intensive management. There are a handful of grassland areas that have a SSSI designation (Dinham Meadows SSSI) but these don't particularly overlap with where the Good habitat condition for Grizzled Skipper was located. Currently, the vast majority of the site, including the SSSI, is overgrazed with sheep present in large numbers during the June 2023 visit. The best habitats are in areas where it is more challenging for sheep to access and in the fenced-off areas towards the north of the site

It is unlikely that the management of the site has changed very much during the recent years, and it is positive that the site does have areas where habitat condition remains Good for Grizzled Skipper, although these are small in area. There is great potential for much of the site to be improved for Grizzled Skipper and invertebrates in general. NRW is managing the SSSI areas and are also working with the landowner to manage a selection of non-designated areas that add ecological value to the site.

The key attributes promoting optimal habitat conditions can and do vary within each site supporting Grizzled Skipper. An understanding of these attributes is critical to identifying appropriate habitat management actions. For example, optimal habitat conditions at MoD Pendine are most frequent within the transition zone between open tarmac hardstanding and heavily vegetated fixed dune. At MoD Caerwent Training Area, the most important feature appears to be thinly vegetated embankments with low nutrient soils, with such areas supporting the three population hotspots and optimal habitat conditions. No contact has been made yet to discuss whether the landowner would consider introducing some changes to the habitat management to benefit Grizzled Skipper.

Butterfly Conservation has formed links with the site in the past. This has mainly been due to the hard work of a previous County Moth Record for Gwent, Dr. Martin Anthoney. Since these visits have stopped, BC has missed out in collecting valuable data for a number of species including Grizzled Skipper, Dingy Skipper and Drab Looper. It has therefore been extremely beneficial for BC to undertake the current surveys on behalf of NRW. In the next section, there are several recommendations which would help protect the Grizzled Skipper population on site. It is hoped that, as a result of these recommendations, there will be an opportunity for BC to work closely with NRW and the MoD to increase the ecological value of the site for the benefit of all parties.

## Recommendations

The recommendations given below have four main foci:

- Identifying the important population hotspots on site;
- Developing a plan to maintain the areas of good condition habitat;
- Improving habitat adjacent to population hotspots;
- Developing a partnership with the landowner.

Recommendations for each zone will be set out to compliment the other zones found in the same section.

## Section 1

Zone 1 is open to grazing but does support habitat in Good condition. The best areas around the embankment could be scraped in patches to create bare ground and give opportunities for flowering plants to spread into. This area would be suitable for importing low nutrient soils to create some mounds and/or banks. If this zone became the focus of investment, then erecting a stock-proof fence would also benefit the habitat management long term.

Zone 2 is part of Dinham Meadows SSSI and was found to be overgrazed during two spring visits in 2023 and 2024. While the position of this zone gives it great potential for becoming extremely important for Grizzled Skipper, the current SSSI management might not allow for significant changes. The zone would benefit from being rested for a season to see how floristically rich it is. In the following year, creation of bare ground might be useful particularly if mounds or banks of low nutrient soils could be formed. In the longer term, a grazing plan to keep the area being lost to scrub encroachment will be necessary.

Zone 3 and Zone 4 are in Good condition and so the recommendation would be to keep the management of these areas the same. It will be beneficial to clarify what, if any, cutting of the vegetation in Zone 4 is taking place. The small raised plateau area found in Zone 4 could do with more diversity within the sward with increased nectar sources. It could also do with more bare ground and perhaps creating bare patches will lead to an increase in nectar sources. It may be possible to place low nutrient soil in mounds on the plateau which could colonise naturally over time with Common Birds-foot-trefoil, etc.

Zone 3 is extremely interesting as it is one of the only zones that is open to stock from the wider site that is in Good condition for Grizzled Skipper. Further monitoring of this small zone is recommended to understand why it remains good and if that might help in other parts of the site where stock control is not practical.

Zone 5 is effectively operating as a butterfly ride with an access track winding roughly north to south. The clearing in the lower half is positioned well but the vegetation where the cutting is being done has become rank. The clearing could do with creating bare ground. Low nutrient soil being dumped in mounds would do well here. If this is not possible then scraping the vegetation in patches would create short term benefits. However, this operation might need to be repeated over a number of years with a plan to rotate scraped areas. Elsewhere in Zone 5, further clearings of scalloped edges to the access track would increase butterfly diversity generally in the zone.

## Section 2

Zone 6 is an extremely important area for the Grizzled Skipper population at MoD Caerwent. The tall and steep embankment supports optimal habitat conditions. It is extremely important to understand what has led to its current condition and to maintain it as sympathetically as possible. If not already highlighted as an important area to the

landowner, then that should be a priority. Regular monitoring – at least on an annual basis – would be important.

Zone 7 contains south facing banks that appear to be a good match to that of Zone 6. The main difference is that the vegetation has become increasingly rank. As a result, floristic richness has suffered and there is a distinct lack of bare soil. The recommendation here would be to create a plan for cuts on the banks to be done annually. There is a consideration that creating too much bare soil on the banks could lead to instability and erosion. Therefore, the plan should look at cutting areas on rotation with scattered patches where vegetation is cut back to bare soil.

### Section 3

Zone 8 appears to be the most likely of the Grizzled Skipper population hotspots to lose optimal habitat conditions. The clearing does appear to be lacking an abundance of nectar sources and bare soil is largely missing. The zone does provide a good example of the importance of mounds and banks within a clearing, and it was at some of the thinly vegetated slopes where Grizzled Skipper adults were watched sunning themselves. It will be worth confirming if regular operations to keep the clearing open are being carried out and, if so, the methodology may need to be altered. In an updated methodology, making sure cuttings are removed from the area will be important. Also actively looking to create bare patches – particularly on the steep bank slopes – would be a worthwhile task. The population hotspots found at this zone should be monitored on an annual basis.

Zone 9 is effectively a butterfly ride with mature trees on both sides of a single track access road. Options to make changes in this zone are limited but if possible it would be worth identifying areas where clearings or scalloped edges could be introduced. This zone is important for Drab Looper and there are a few locations where Wood Spurge is locally abundant. Wood Spurge responds well to clearing but not to persistent clearing. It might therefore be worth looking at options where zones might be cleared on rotation over a long period of time.

### Section 4

Zones 10 & 11 did not produce any Grizzled Skipper sightings during the 2024 survey. Active intervention here is therefore less urgent than in Sections 1 to 3. In the wider context, part of one of the Dinham Meadows SSSI field complexes is adjacent to both these zones. The main actions within this section would be to create more nectar sources and bare soil in Zone 11 and the Meadow. Importing low nutrient soil to form mounds and banks would work extremely well here.

## Partnership collaboration

Below are a few points that might help maximise the effect of partnership working in the future:

- Butterfly Conservation would like, when resources allow, to commit a member of the Wales Conservation Team or South Wales Branch Volunteers to making at least one visit each year;
- Butterfly Conservation would be happy to arrange a coordinated partnership visit to provide expertise or engage in onsite discussions for future habitat management actions;
- Butterfly Conservation would be open to providing onsite supervision or training to contractors carrying out operations as informed by the recommendations in this report;
- Butterfly Conservation would benefit from the support of NRW to arrange visits at key times in the flight season so that valuable data collection and monitoring can be completed.
- Butterfly Conservation would like to explore options to help connect the three existing Grizzled Skipper population hotspots on site;
- Butterfly Conservation would like to look closely into the status of Drab Looper on site and provide more detailed recommendations to protect the species here.

## 8.11 Caerwent Quarry

It was extremely difficult to find out who the current landowner of the site is. A desktop search found details about the site possibly entering into a planning consultation to turn the site into a landfill. Apart from doing a desktop search, some communications were sent to Monmouth County Council requesting an opportunity to discuss the site but these attempts did not return any response. As a result, no site visits were undertaken in either 2023 or 2024.

## 8.12 Livox Quarry

This site appears to have changed ownership a number of times in recent years. A desktop search found that a Diving Training centre operating out of Gloucestershire was the most recent landowner with a public contact number. However, they ceased to operate in 2022 and the contact number available only allowed messages to be left. As such, a number of messages were left in hope to make contact but no calls were returned. In addition, communications were sent to Monmouth County Council to seek clarification on plans for the site. These attempts drew no response. Some information found online suggested that the area might be entering into planning consultation to develop the site into a holiday park. As a result, no site visits were undertaken in either 2023 or 2024.

## 8.13 Trecwm Valley

The Trecwm Valley site, south of Fishguard, is a former decommissioned Royal Navy Armaments Depot (RNAD) built in 1938 to store naval mines and munitions, featuring 58 underground storage tunnels and a copper railway network. The depot was decommissioned in 1992 and closed in 1995. Site ownership was transferred to Omega Pacific in 1988 and then to Manhattan Loft Corporation in 2002. The site is being redeveloped as an industrial park, with plans for office, industrial, warehousing and storage

purposes. At 1100 acres, the site is extensive, with 21 ha (52 acres) designated in the LDP as part of the Haven Development Zone and has B1, B2 and B8 planning permission status. Renewable Energy Wales Ltd. is in a joint venture with Manhattan Loft Corporation to develop and manage the site; it is a privately owned company which develops sustainable energy schemes in Wales. Trecwm Valley has been chosen by Stadtkraft to become the first Green Hydrogen production plant in Pembrokeshire.

Butterfly Conservation contacted Huw Davies of Renewable Energy Wales on 27<sup>th</sup> April 2023 to discuss the NRW commissioned Grizzled Skipper survey and request access to the site to survey for the butterfly. Huw Davies stated that ecological surveys were currently being conducted by LUC consultants in relation to Stadtkraft's proposed Hydrogen plant; Mr. Davies stated that land take for the development was small but that ecological surveys were being undertaken throughout the whole valley. Mr. Davies asked BC to forward details of the proposed Grizzled Skipper survey so that he could put BC in contact with LUC to discuss surveys further; BC emailed Huw with survey details on 27<sup>th</sup> April 2023. No further correspondence or contact was received from Mr. Davies despite follow-up phone calls (with answerphone messages left) and emails to Mr. Davies. Contact was made with Pembrokeshire County Council Ecologist regarding further potential avenues to pursue in order to gain access. BC's request was in turn passed onto Pembrokeshire County Councils Planning Ecologist who had recently considered requirements for screening EIA. No further correspondence or information was received from the Council. As a result, no site visits were undertaken in either 2023 or 2024. There are reports of a large number of butterflies from the site with the most recent accessible records from 2014 but reports from up to 2016. The butterfly was first recorded from the site in 2002 (2 adults) with 14 adults recorded in 2006. Small numbers (not exceeding 2-3 individuals) have been recorded from the forest track at Cwm Ffrwd on several dates in 2011-12. This site could now well support the last remaining population in Pembrokeshire with no recent records from any of the other sites which were only known to support very small numbers of the butterfly or singletons. It is therefore very important that access is gained to this site, or access provided to any documents containing assessments of the butterfly's status at the site, so that a current picture can be gained of how it is faring and any conservation action required.

# Appendix 1. Grizzled Skipper survey form 2023 and supporting notes

SITE DETAILS			
SITE NAME		SURVEYOR	
ADMINISTRATIVE COUNTY		NETWORK/LARGER SITE	
OS GRID REF		VICE COUNTY	
ASPECT		SLOPE (FLAT/GENTLE/MODERATE/STEEP)	
ALTITUDE		PRIMARY HABITAT ON SITE	
10KM SQUARE		HABITAT USED BY SPECIES (SEE NOTE 1)	
SITE OWNER / MANAGER		CONSERVATION STATUS	
MAP: INFORMATION TO INCLUDE			
<ul style="list-style-type: none"> <li>• SITE BOUNDARY</li> <li>• SLOPE IF VARIES WITHIN SITE</li> <li>• MAIN FLIGHT/BREEDING AREAS WHERE GRIZZLED SKIPPER ARE STILL PRESENT</li> <li>• INDIVIDUAL SIGHTINGS</li> <li>• FLIGHT AREAS WHERE SPECIES HAS DISAPPEARED</li> <li>• EXTENT OF SUITABLE HABITAT ON SITE</li> <li>• KEY NECTARTING AREAS</li> <li>• 'QUICK HABITAT CONDITION ASSESSMENT' OF SITE – SEE SEPARATE METHODOLOGY</li> <li>• DETAILED HABITAT CONDITION ASSESSMENT AREAS (IF UNDERTAKEN)</li> </ul>			
FOODPLANT AVAILABILITY (SEE NOTE 2)			
PRIMARY FOODPLANT PRESENT			
PRIMARY FOODPLANT ABUNDANCE			
SECONDARY FOODPLANT PRESENT			
SECONDARY FOODPLANT ABUNDANCE			
LIMITING FACTORS AT SITE LEVEL (SEE NOTE 3)			
FACTOR	COMMENTS		

<b>HABITAT CONDITION WITHIN AREA(S) USED BY GRIZZLED SKIPPER (SEE NOTE 4)</b>		
<b>KEY FACTOR</b>	<b>COMMENTS</b>	
SWARD HEIGHT		
FOODPLANT ABUNDANCE		
NECTAR PLANT ABUNDANCE		
ABUNDANCE SEED HEADS (>30CM TALL) FROM PREVIOUS YEAR		
BARE GROUND – ABUNDANCE AND DISTRIBUTION		
SCRUB– COVER AND DISTRIBUTION – NOTE IN TERMS OF SHADE & SHELTER		
<b>SITE MANAGEMENT</b>		
TYPE OF MANAGEMENT SCHEME		
CURRENT MANAGEMENT FOR SPECIES		
MANAGEMENT NEEDED		
<b>THREATS TO POPULATION (SEE NOTE 5)</b>		
<b>THREAT</b>	<b>COMMENTS</b>	<b>THREAT LEVEL (SEE NOTE 6)</b>

## **GRIZZLED SKIPPER SURVEY FORM SUPPORTING NOTES**

### **Grizzled Skipper Key Requirements:**

- Larval foodplants
- Mosaic of short herb-rich vegetation (<10cm) often with stone, rocks or bare ground patches.
- Taller vegetation (10-50cm), including dead flowering spikes, for shelter, basking roosting
- Spring nectar
- Low scrub for mate-location and as foodplant habitat.

### **1. Primary habitat on site:**

- Woodland clearings and wide rides
- Unimproved grassland with scrub
- Disused artificial habitats (industrial habitats e.g. railway lines).
- Also heathland, shingle, sand dune, acidic, neutral, marshy grassland.

### **2. Foodplant availability**

\*Subjective assessment only – will be further informed by habitat condition assessment where required (using Brereton 2005 methodology).

#### **Principle foodplants:**

Agrimony

Creeping Cinquefoil

Wild Strawberry

**Also:** Barren Strawberry, Tormentil, Salad Burnet, Bramble, Dog-rose, Wood Avens

**D** – Dominant

**A** – Abundant

**F** – Frequent

**O** – Occasional

**R** – Rare

### **3. Limiting factors at site level**

- Lack of foodplant
- Sward too tall/rank/lack of grazing
- Sward too short/overgrazed
- Too much scrub
- Too little scrub
- Distribution of scrub
- Too little bare ground
- Too little nectar

- Lack of seed heads from previous year
- Lack of coppicing/glade or ride opening (woodland only)
- Poor habitat connectivity

#### 4. Habitat condition

##### **Known/presumed nectar sources:**

- Bugle
- Common Dog-violet
- Daisy
- Germander Speedwell
- Ground Ivy
- Milkwort
- Thyme
- Wild Strawberry
- Yellow-Dandelion types
- Yellow vetches e.g. Bird's-foot Trefoil

**Seed heads** – dead flowering spikes from previous year e.g. Marjoram, St John's-wort, Knapweed spp, Ribwort Plantain.

#### 5. Threats

- Lack of coppicing and inappropriate ride management (woodlands)
- Improvement of grassland/scrub habitat
- Undergrazing of grassland/scrub habitat
- Overgrazing of grassland/scrub habitat
- Lack of management on disused artificial habitats and consequent loss of early successional vegetation
- Fragmentation and isolation of existing colonies and intensive use of surrounding agricultural land.
- Development
- Natural succession
- Management e.g. loss woodland management
- Re-quarrying
- Restoration
- Other
- Agricultural improvement – loss grassland/scrub habitats

#### 6. Level of threat

- High /Imminent
- Medium
- Low / Long-term

# Appendix 2. Wales Grizzled Skipper ‘Rapid’ Habitat Condition Assessment trial methodology

## 1. Main Site Features

Annotate aerial map of site with altitude, aspect, slope (flat/gentle/moderate/steep), shade/shelter and main habitat types – grassland, scrub etc. Note any key nectaring areas. Use Grizzled Skipper Survey Form to further document these attributes and describe current management and limiting factors.

## 2. Determine Flight Area of Butterfly

Determine flight area of butterfly – walk over whole site at peak flight period. Flight area is the main area occupied by the butterfly where aggregations of the butterfly are found flying freely together. Record locations of adults seen with GPS. If adults patchily spread over large area identify sub-populations and survey separately.

## 3. Extent of Suitable, Potentially Suitable and Unsuitable Habitat on Site

### Key Habitat Features Required by Butterfly:

- Foodplants (Wild Strawberry, Barren Strawberry, Creeping Cinquefoil, Tormentil, Agrimony. Dewberry is used on some sites. Bramble used by later larval stages.)
  - Mosaic of:
    - short herb-rich vegetation (<10cm), often with stone, rocks or bare ground.
    - Taller vegetation (10-50cm), including dead flowering spikes for shelter, basking and roosting.
    - Abundant spring nectar (Daisy, Bugle, Bulbous buttercup and Bird’s-foot Trefoil)
    - Low scrub (<4m) – for mate location, shelter and as foodplant habitat
- a) **Suitable Habitat:** foodplant(s) in a mosaic of short and tall vegetation with bare ground, nectar and scattered scrub.
- b) **Potentially Suitable Habitat:** rare foodplant(s) growing in a rank sward.
- c) **Unsuitable:** No or almost no foodplant present / unsuitable habitat type.
- Determine extent of Suitable, Potentially Suitable and Unsuitable habitat within flight area and outside it, if present (may not be utilised due to isolation etc).
  -

## 4. Habitat Condition of Suitable Habitat on Site

Keep very simple to allow rapid assessment of habitat, particularly on large sites which it would otherwise be difficult to collect useful information for. Due to mosaic requirement keep mapping at a fairly coarse scale to pick up all the different elements the butterfly needs. If the whole site falls within one category, then map as such. If, as likely the case on larger sites, different areas support different condition categories then split as considered appropriate.

<b>Habitat condition category</b>	<b>Habitat parameters / explanation</b>
Good	<p>The habitat includes at least 5 of the following parameters, including all of the first 4 listed,</p> <ul style="list-style-type: none"> <li>• Abundant spring (April to mid-June) nectar sources;</li> <li>• Abundance of at least one of the following key larval food-plants: Agrimony, Creeping Cinquefoil, Wild Strawberry, or more infrequently Barren Strawberry, Tormentil and Dewberry;</li> <li>• Larval food-plants are growing in short (&lt;10cm), herb-rich vegetation;</li> <li>• Sheltered (by low scrub/woodland edge), sunny site</li> <li>• A vegetation mosaic exists whereby patches of taller vegetation (10-50cm) including dead flowering spikes are present;</li> <li>• Bare ground is frequent with larval foodplants often adjacent;</li> <li>• Some taller vegetation with larger leaves (e.g. Bramble and larger cinquefoil leaves);</li> </ul>
Fair	<p>The habitat includes at least 4 of the following parameters, including both of the first 2 listed,</p> <ul style="list-style-type: none"> <li>• Vegetation is moderately species-rich with Frequent/ Occasional nectar</li> <li>• The key larval foodplants may be locally frequent but are not found throughout the area</li> <li>• The optimal height around larval foodplants may not always be achieved (e.g. due to lack of grazing or other management).</li> <li>• The site may or may not be sheltered.</li> <li>• The vegetation may not provide a range of conditions e.g. no mosaic</li> <li>• Bare ground is present but may not be Frequent</li> </ul>
Poor	<p>The habitat includes at least 4 of the following parameters, including both of the first 2 listed</p> <ul style="list-style-type: none"> <li>• Relatively species-poor vegetation with Occasional nectar sources</li> <li>• The key larval foodplants are Occasional at most</li> <li>• The vegetation structure is sub-optimal for the species (e.g. it may be too tall and rank)</li> <li>• There are few larval foodplants located in suitable egg-laying conditions</li> <li>• Bare ground is infrequent at most</li> <li>• Little shelter is provided or scrub colonisation is well advanced</li> </ul>
Potentially Suitable	<p>The habitat includes at least two of the following parameters, including one of the first two listed</p> <ul style="list-style-type: none"> <li>• The key larval foodplants are Rare</li> <li>• The vegetation is species-poor or has an unsuitable structure but could be restored by management</li> <li>• There is no bare ground or short/sparse vegetation</li> <li>• The habitat may be very open or scrubbing over</li> </ul>
Not Suitable	No or almost no foodplants present/unsuitable habitat type.

**DAFOR Scale for feature abundance.**

<b>DAFOR Code</b>	<b>Percentage cover of area</b>	<b>Explanation</b>
D (Dominant)	>75%	Habitat feature dominant
A (Abundant)	51-75%	Habitat feature commonly occurring
F (Frequent)	26-50%	Habitat feature always in view
O (Occasional)	11-25%	A few patches supporting habitat feature present
R (Rare)	1-10%	Habitat feature rare in area
N (None)	0	No habitat feature found in area.

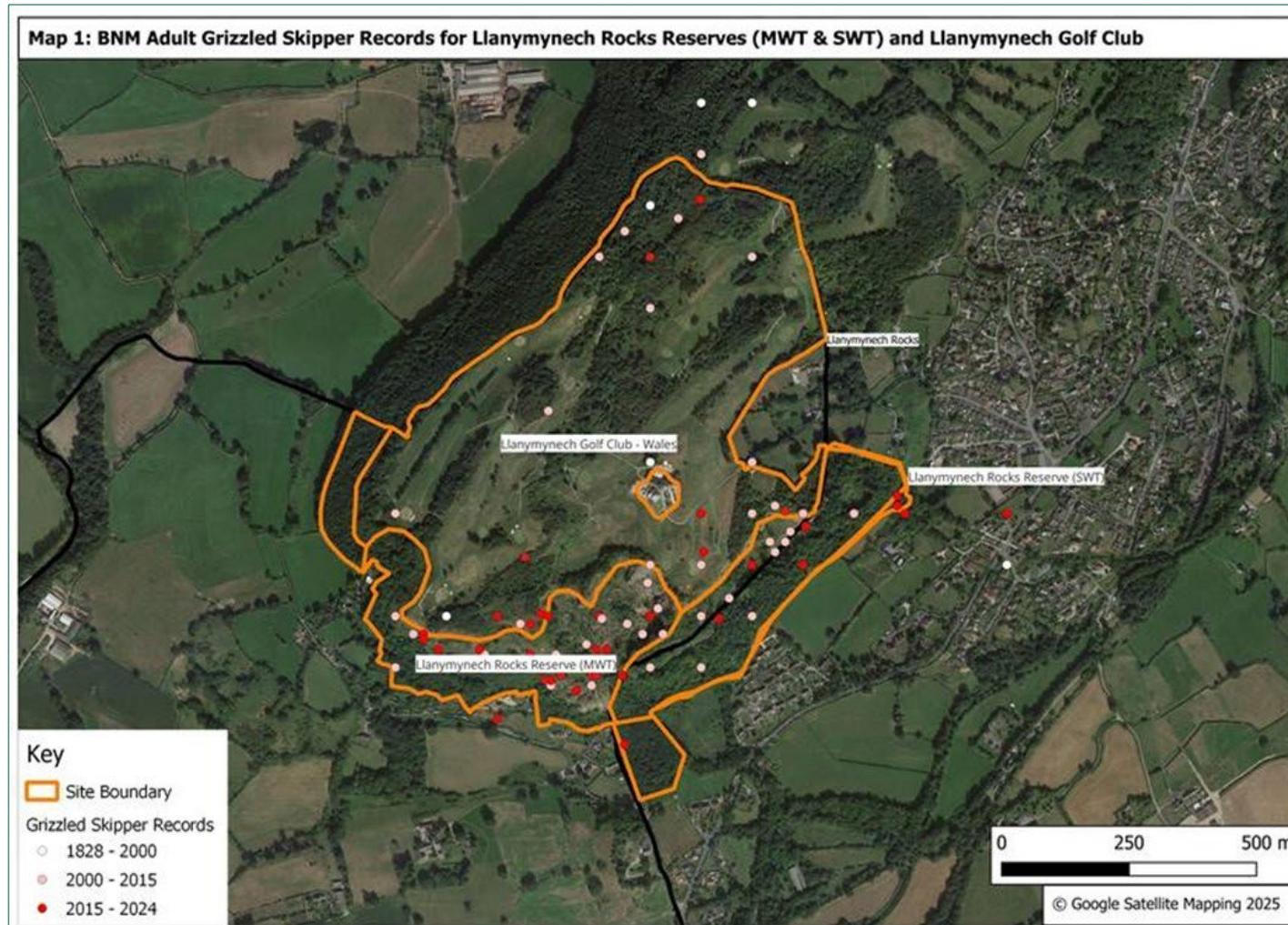
**Additional Notes to Make – use Grizzled Skipper Survey Form**

- **Current management regime**
- **Threats/potential threats to butterfly**
- **Proposed management** - describe details of management that would enhance site for Grizzled Skipper especially for fair and poor habitat condition categories.
- **Constraints** – outline any factors that might constrain Grizzled Skipper at this site e.g. lack of foodplants, nectar, isolation, too shady etc.

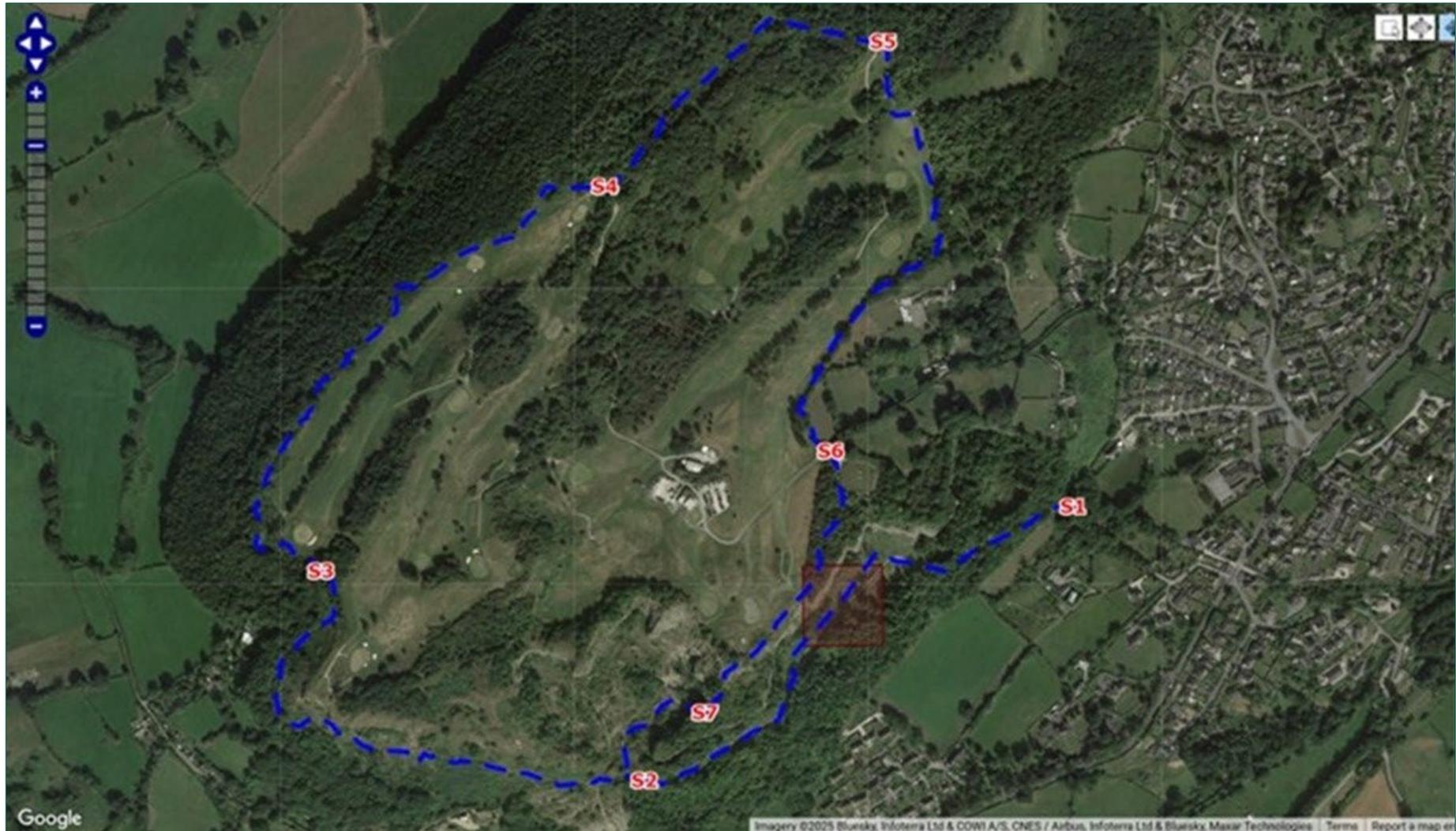
**4. Brereton Type Habitat Condition Assessment**

- For smaller sites, if time, could collect some attribute info at finer scale along lines of Brereton assessment.

## Appendix 3. Llanymynech Rocks Reserves & Golf Course maps



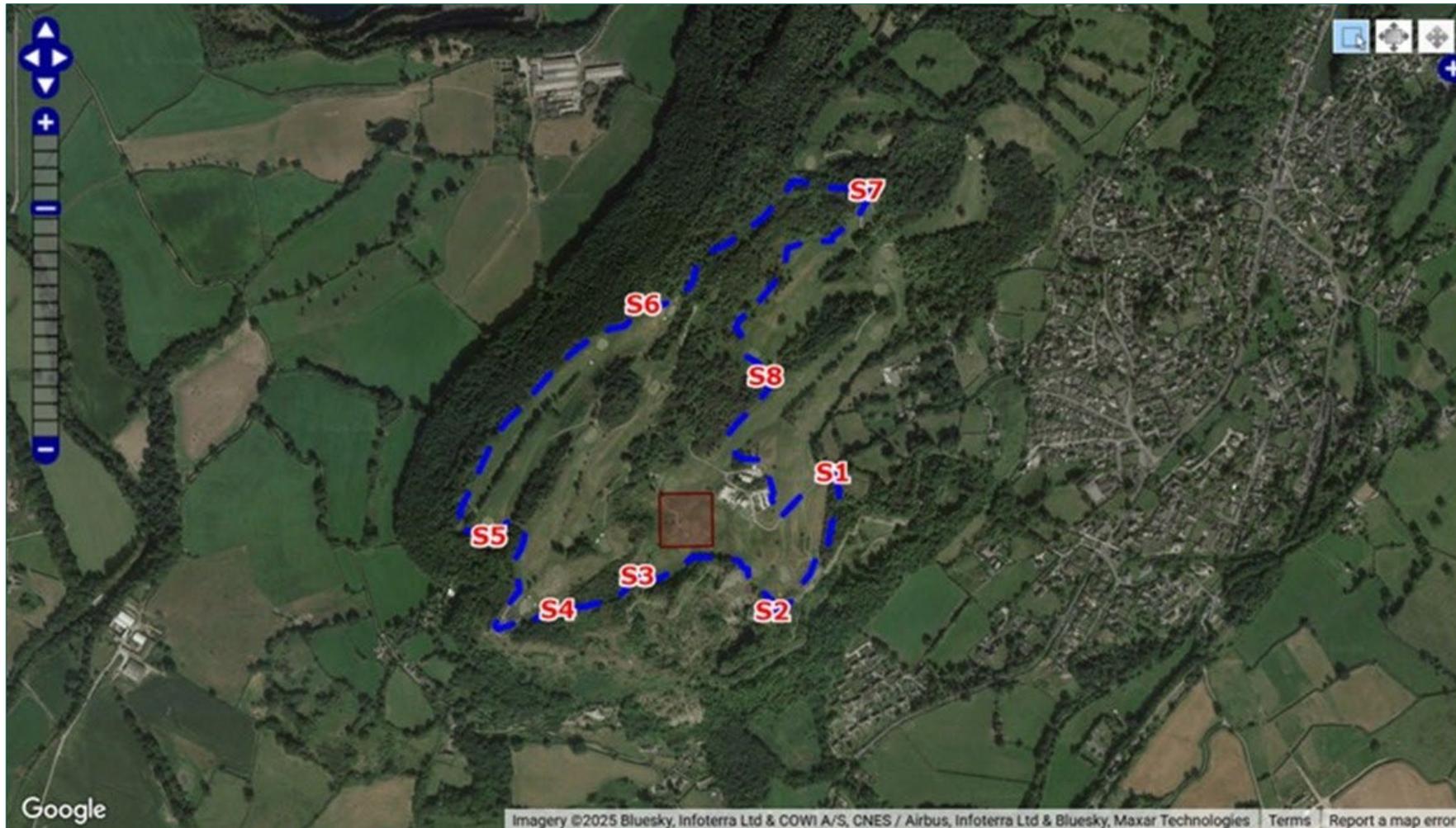
Map 2a. Llanymynech Hill SSSI UKBMS Transect Route 2011 – 2022. Map taken from UKBMS Portal.



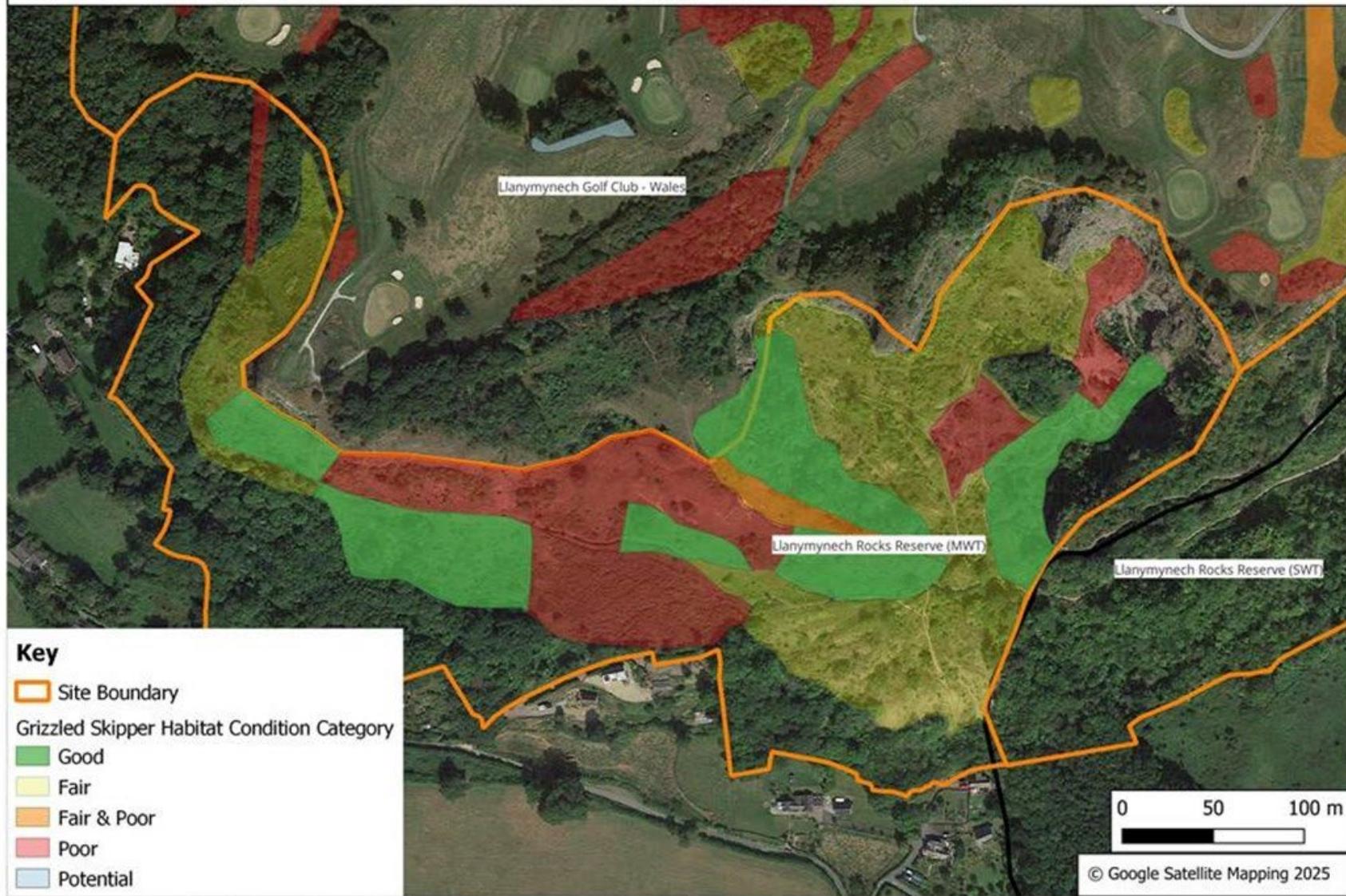
Map 2b. Llanymynech Rocks MWT Transect – Established 2023. Map taken from UKBMS Portal.



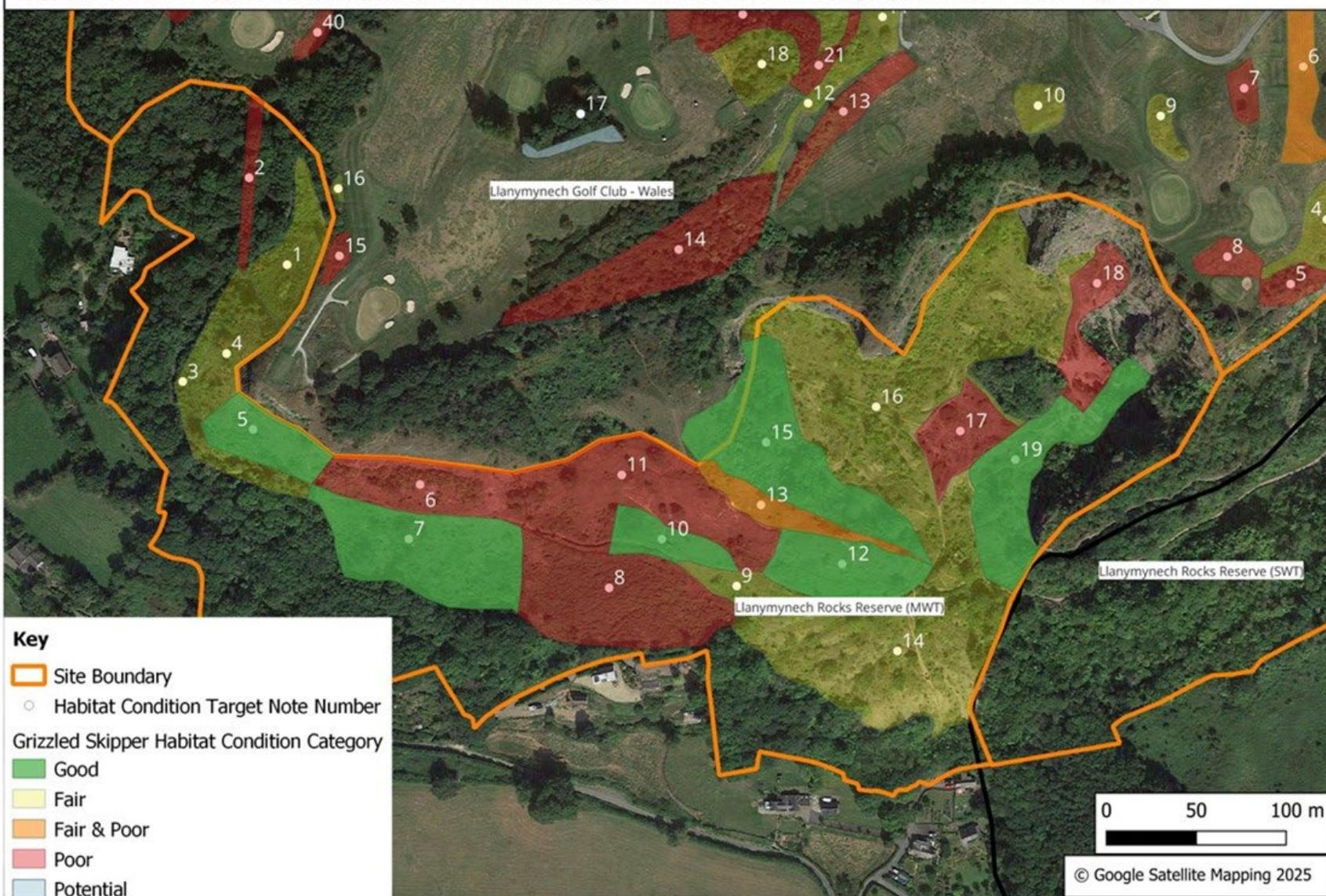
Map 2c. Llanymynech Golf Course Transect – Established 2023. Map taken from UKBMS Portal.



Map 3a: Grizzled Skipper Habitat Condition Assessment for Llanymynech Rocks Reserve (MWT)



**Map 3b: Grizzled Skipper Habitat Condition Assessment Target Note Locations for Llanymynech Rocks Reserve (MWT)**



**Map 4a: Grizzled Skipper Habitat Condition Assessment for Llanymynech Golf Course (Wales side only)**

**Key**

Site Boundary

Grizzled Skipper Habitat Condition Category

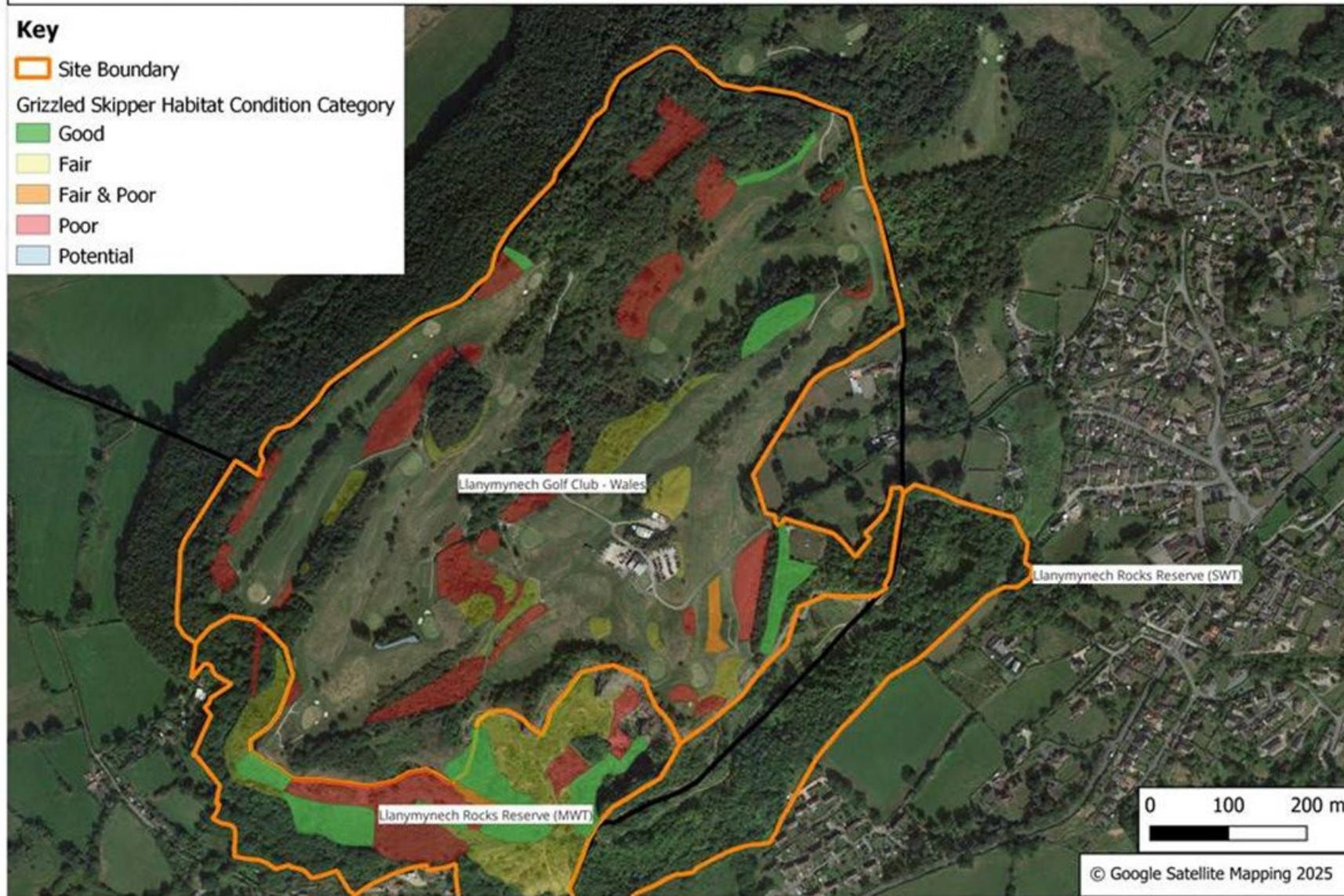
Good

Fair

Fair & Poor

Poor

Potential



**Map 4b: Grizzled Skipper Habitat Condition Assessment Target Note Locations for Llanymynech Golf Course (Wales side only)**

**Key**

Site Boundary

Habitat Condition Target Note Number

Grizzled Skipper Habitat Condition Category

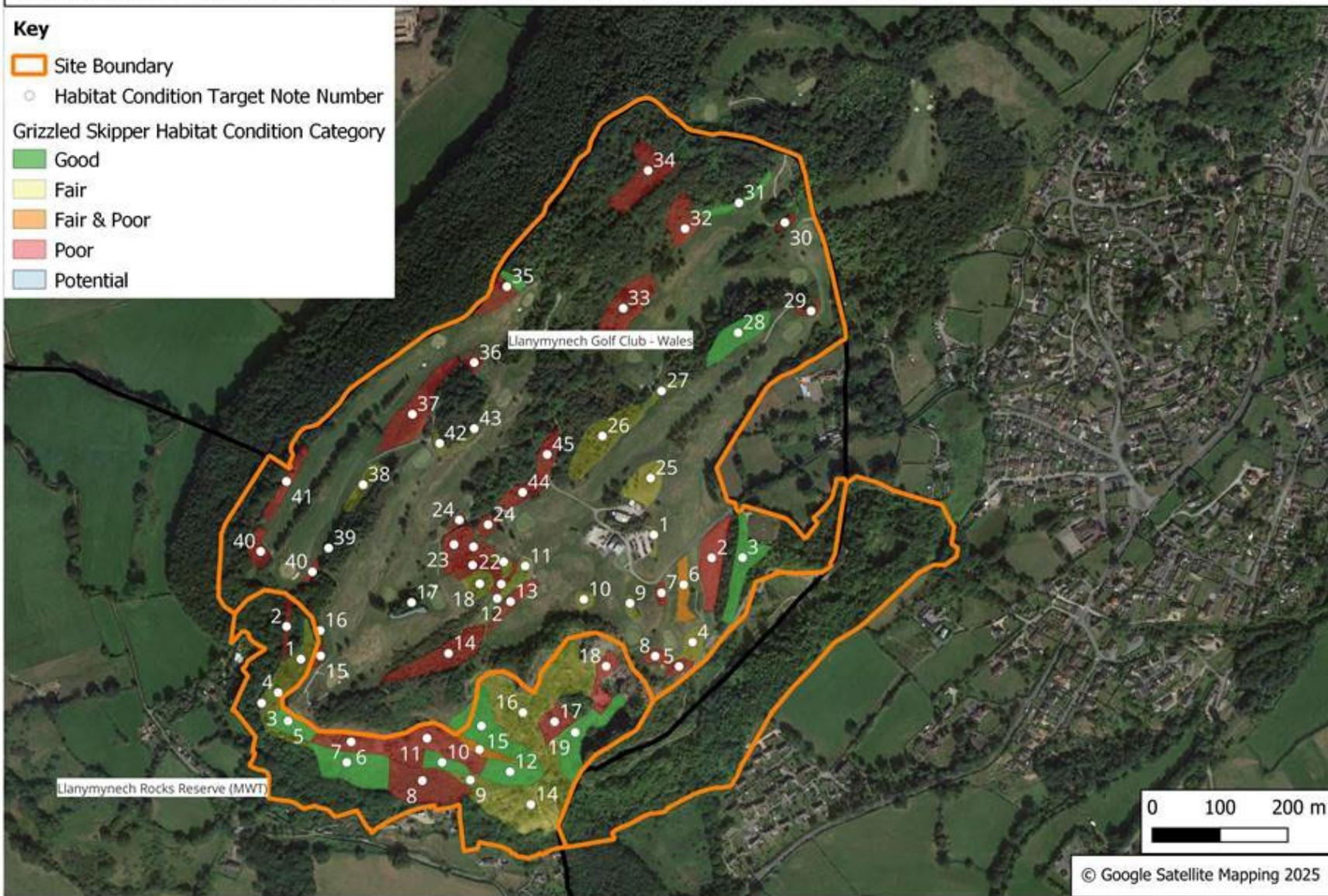
Good

Fair

Fair & Poor

Poor

Potential



## Appendix 4. HMP Berwyn Ecological Mitigation Area transect results.

Table 1. 2023 HMP Berwyn Ecological Mitigation Area Grizzled Skipper transect counts

UK BMS week	Date	Transect walker	Section No.	No. Grizzled Skipper	No. Dingy Skipper
<b>Week 7</b>	18/05/2023	Clare Williams (BC Staff)	1	0	0
-	18/05/2023	Clare Williams (BC Staff)	2	0	7
-	18/05/2023	Clare Williams (BC Staff)	3	1	4
-	18/05/2023	Clare Williams (BC Staff)	4	0	0
-	18/05/2023	Clare Williams (BC Staff)	5	6	8
-	18/05/2023	Clare Williams (BC Staff)	6	3	8
-	18/05/2023	Clare Williams (BC Staff)	7	0	2
-	18/05/2023	Clare Williams (BC Staff)	8	1	3
-	<b>Total</b>	-	-	<b>11</b>	<b>32</b>
<b>Week 8</b>	25/05/2023	Clare Williams (BC Staff)	1	0	0
-	25/05/2023	Clare Williams (BC Staff)	2	6	9
-	25/05/2023	Clare Williams (BC Staff)	3	3	8
-	25/05/2023	Clare Williams (BC Staff)	4	0	1
-	25/05/2023	Clare Williams (BC Staff)	5	3	8
-	25/05/2023	Clare Williams (BC Staff)	6	1	9
-	25/05/2023	Clare Williams (BC Staff)	7	1	2
-	25/05/2023	Clare Williams (BC Staff)	8	3	1
-	<b>Total</b>	-	-	<b>17</b>	<b>38</b>
<b>Week 9</b>	02.06.2023	NWWT volunteers	1	1	2
-	02.06.2023	NWWT volunteers	2	7	8
-	02.06.2023	NWWT volunteers	3	1	0
-	02.06.2023	NWWT volunteers	4	1	6
-	02.06.2023	NWWT volunteers	5	5	13
-	02.06.2023	NWWT volunteers	6	4	9
-	02.06.2023	NWWT volunteers	7	0	0
-	02.06.2023	NWWT volunteers	8	0	0
-	<b>Total</b>	-	-	<b>19</b>	<b>38</b>

Table 2. 2023 HMP Berwyn Ecological Mitigation Area Grizzled Skipper additional count (transect guidance not adhered to)

UK BMS week	Date	Transect walker	Section No.	No. Grizzled Skipper	No. Dingy Skipper
<b>Week 8</b>	26.05.2023	NWWT volunteers	1	0	1
-	26.05.2023	NWWT volunteers	2	6	6
-	26.05.2023	NWWT volunteers	3	1	1
-	26.05.2023	NWWT volunteers	4	6	6
-	26.05.2023	NWWT volunteers	5	3	10
-	26.05.2023	NWWT volunteers	6	5	10
-	26.05.2023	NWWT volunteers	7	3	2
-	26.05.2033	NWWT volunteers	8	0	8
-	<b>Total</b>	-	-	<b>24</b>	<b>44</b>

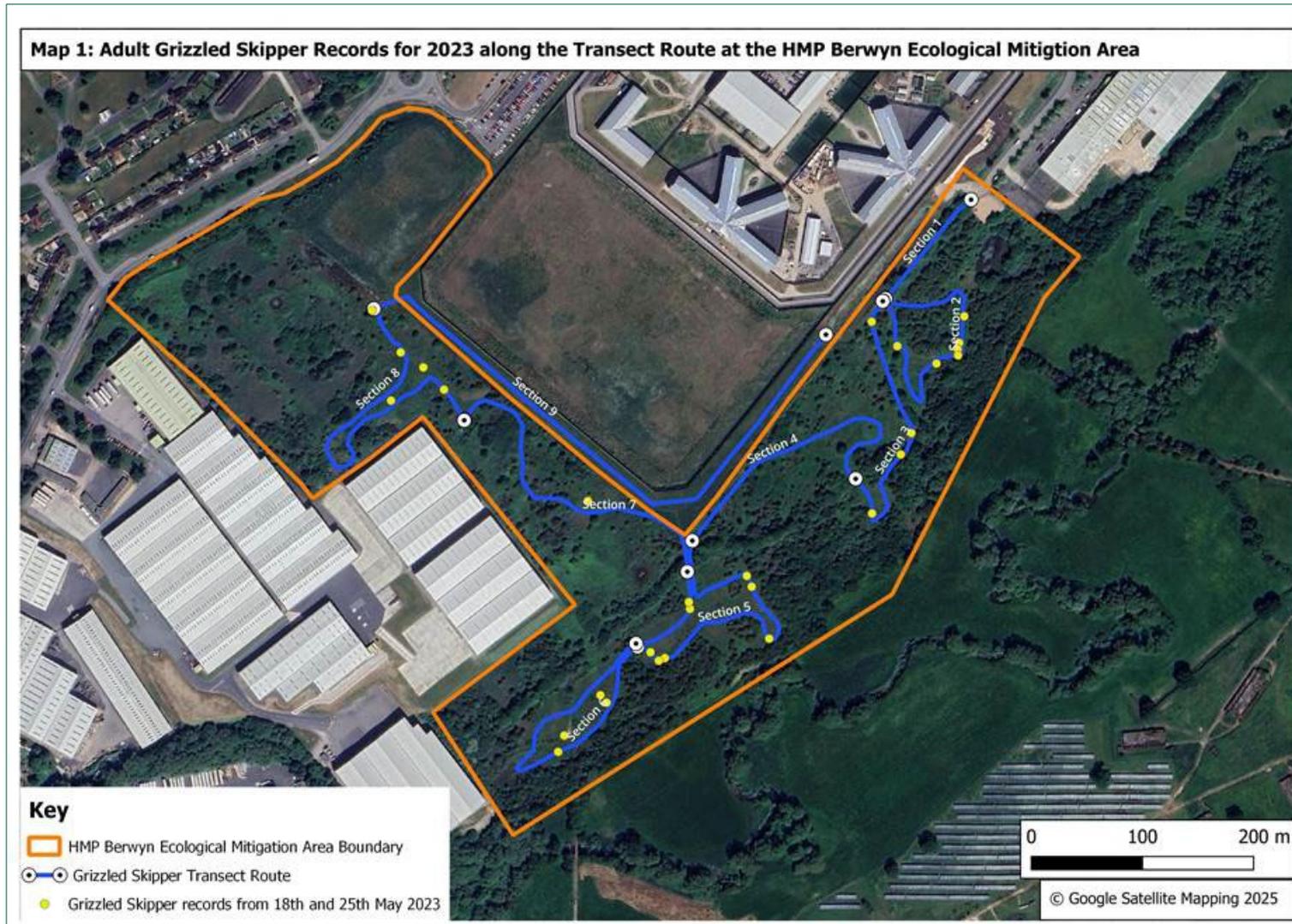
Table 3. 2024 HMP Berwyn Grizzled Skipper and Dingy Skipper Transect Results.

UKBMS week	Date	Transect walker	Section No.	No. Grizzled Skipper	No. Dingy Skipper
<b>Week 4</b>	22/04/2024	NWWT Volunteer	1	0	0
-	22/04/2024	NWWT Volunteer	2	0	0
-	22/04/2024	NWWT Volunteer	3	0	0
-	22/04/2024	NWWT Volunteer	4	0	0
-	22/04/2024	NWWT Volunteer	5	0	0
-	22/04/2024	NWWT Volunteer	6	0	0
-	22/04/2024	NWWT Volunteer	7	0	0
-	22/04/2024	NWWT Volunteer	8	0	0
-	22/04/2024	NWWT Volunteer	9	0	0
-	<b>Total</b>	-	-	<b>0</b>	<b>0</b>
<b>Week 5</b>	01/05/2024	NWWT Volunteer	1	0	0
-	01/05/2024	NWWT Volunteer	2	0	0
-	01/05/2024	NWWT Volunteer	3	0	0
-	01/05/2024	NWWT Volunteer	4	0	0
-	01/05/2024	NWWT Volunteer	5	0	0
-	01/05/2024	NWWT Volunteer	6	0	0
-	01/05/2024	NWWT Volunteer	7	0	0
-	01/05/2024	NWWT Volunteer	8	0	0
-	01/05/2024	NWWT Volunteer	9	0	0
-	<b>Total</b>	-	-	<b>0</b>	<b>0</b>
<b>Week 6</b>	09/05/2024	NWWT Volunteer	1	0	0
-	09/05/2024	NWWT Volunteer	2	0	0
-	09/05/2024	NWWT Volunteer	3	0	0
-	09/05/2024	NWWT Volunteer	4	0	0
-	09/05/2024	NWWT Volunteer	5	0	0
-	09/05/2024	NWWT Volunteer	6	0	0
-	09/05/2024	NWWT Volunteer	7	0	0
-	09/05/2024	NWWT Volunteer	8	0	0
-	09/05/2024	NWWT Volunteer	9	0	0
-	<b>Total</b>	-	-	<b>0</b>	<b>0</b>
<b>Week 7</b>	19/05/2024	NWWT Volunteer	1	0	2
-	19/05/2024	NWWT Volunteer	2	1	2
-	19/05/2024	NWWT Volunteer	3	0	2
-	19/05/2024	NWWT Volunteer	4	0	3
-	19/05/2024	NWWT Volunteer	5	3	6
-	19/05/2024	NWWT Volunteer	6	1	0
-	19/05/2024	NWWT Volunteer	7	0	0
-	19/05/2024	NWWT Volunteer	8	0	2
-	19/05/2024	NWWT Volunteer	9	1	0
-	<b>Total</b>	-	-	<b>6</b>	<b>17</b>
<b>Week 8</b>	24/05/2024	BC Staff	1	0	0
-	24/05/2024	BC Staff	2	0	0
-	24/05/2024	BC Staff	3	0	0
-	24/05/2024	BC Staff	4	0	0

UKBMS week	Date	Transect walker	Section No.	No. Grizzled Skipper	No. Dingy Skipper
-	24/05/2024	BC Staff	5	0	0
-	24/05/2024	BC Staff	6	0	0
-	24/05/2024	BC Staff	7	0	0
-	24/05/2024	BC Staff	8	0	0
-	24/05/2024	BC Staff	9	0	0
	<b>Total</b>	-	-	<b>0</b>	<b>0</b>
<b>Week 9</b>	02/06/2024	NWWT Volunteer	1	0	2
-	02/06/2024	NWWT Volunteer	2	3	0
-	02/06/2024	NWWT Volunteer	3	1	0
-	02/06/2024	NWWT Volunteer	4	0	0
-	02/06/2024	NWWT Volunteer	5	0	0
-	02/06/2024	NWWT Volunteer	6	0	0
-	02/06/2024	NWWT Volunteer	7	0	0
-	02/06/2024	NWWT Volunteer	8	0	0
-	02/06/2024	NWWT Volunteer	9	0	0
	<b>Total</b>	-	-	<b>4</b>	<b>2</b>
<b>Week 12</b>	17/06/2024	NWWT Volunteer	1	0	0
-	17/06/2024	NWWT Volunteer	2	0	0
-	17/06/2024	NWWT Volunteer	3	0	0
-	17/06/2024	NWWT Volunteer	4	0	0
-	17/06/2024	NWWT Volunteer	5	0	0
-	17/06/2024	NWWT Volunteer	6	0	0
-	17/06/2024	NWWT Volunteer	7	0	0
-	17/06/2024	NWWT Volunteer	8	0	0
-	17/06/2024	NWWT Volunteer	9	0	0
	<b>Total</b>	-	-	<b>0</b>	<b>0</b>
<b>Week 12</b>	19/06/2024	NWWT Volunteer	1	0	0
-	19/06/2024	NWWT Volunteer	2	0	0
-	19/06/2024	NWWT Volunteer	3	0	0
-	19/06/2024	NWWT Volunteer	4	0	0
-	19/06/2024	NWWT Volunteer	5	0	0
-	19/06/2024	NWWT Volunteer	6	0	0
-	19/06/2024	NWWT Volunteer	7	0	0
-	19/06/2024	NWWT Volunteer	8	0	0
-	19/06/2024	NWWT Volunteer	9	0	0
-	<b>Total</b>	-	-	<b>0</b>	<b>0</b>
<b>Week 13</b>	28/06/2024	NWWT Volunteer	1	0	0
-	28/06/2024	NWWT Volunteer	2	0	0
-	28/06/2024	NWWT Volunteer	3	0	0
-	28/06/2024	NWWT Volunteer	4	0	0
-	28/06/2024	NWWT Volunteer	5	0	0
-	28/06/2024	NWWT Volunteer	6	0	0

UKBMS week	Date	Transect walker	Section No.	No. Grizzled Skipper	No. Dingy Skipper
-	28/06/2024	NWWT Volunteer	7	0	0
-	28/06/2024	NWWT Volunteer	8	0	0
-	28/06/2024	NWWT Volunteer	9	0	0
-	<b>Total</b>	-	-	<b>0</b>	<b>0</b>

## Appendix 5. HMP Berwyn Ecological Mitigation Area maps



**Map 2: Grizzled Skipper Habitat Condition Assessment for the HMP Berwyn Ecological Mitigation Area**



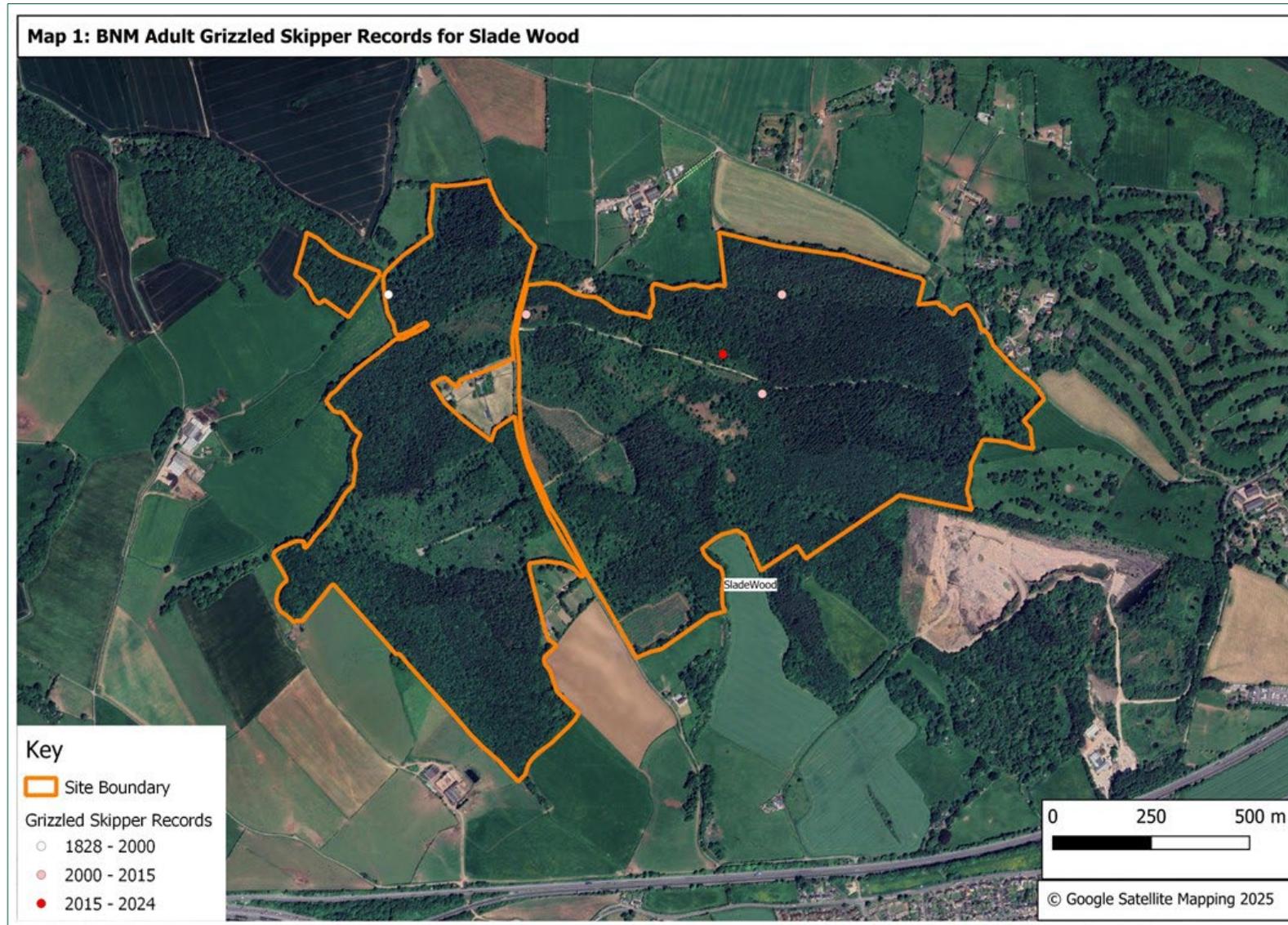
**Map 3: Grizzled Skipper Habitat Condition Assessment Target Note Locations for the HMP Berwyn Ecological Mitigation Area**



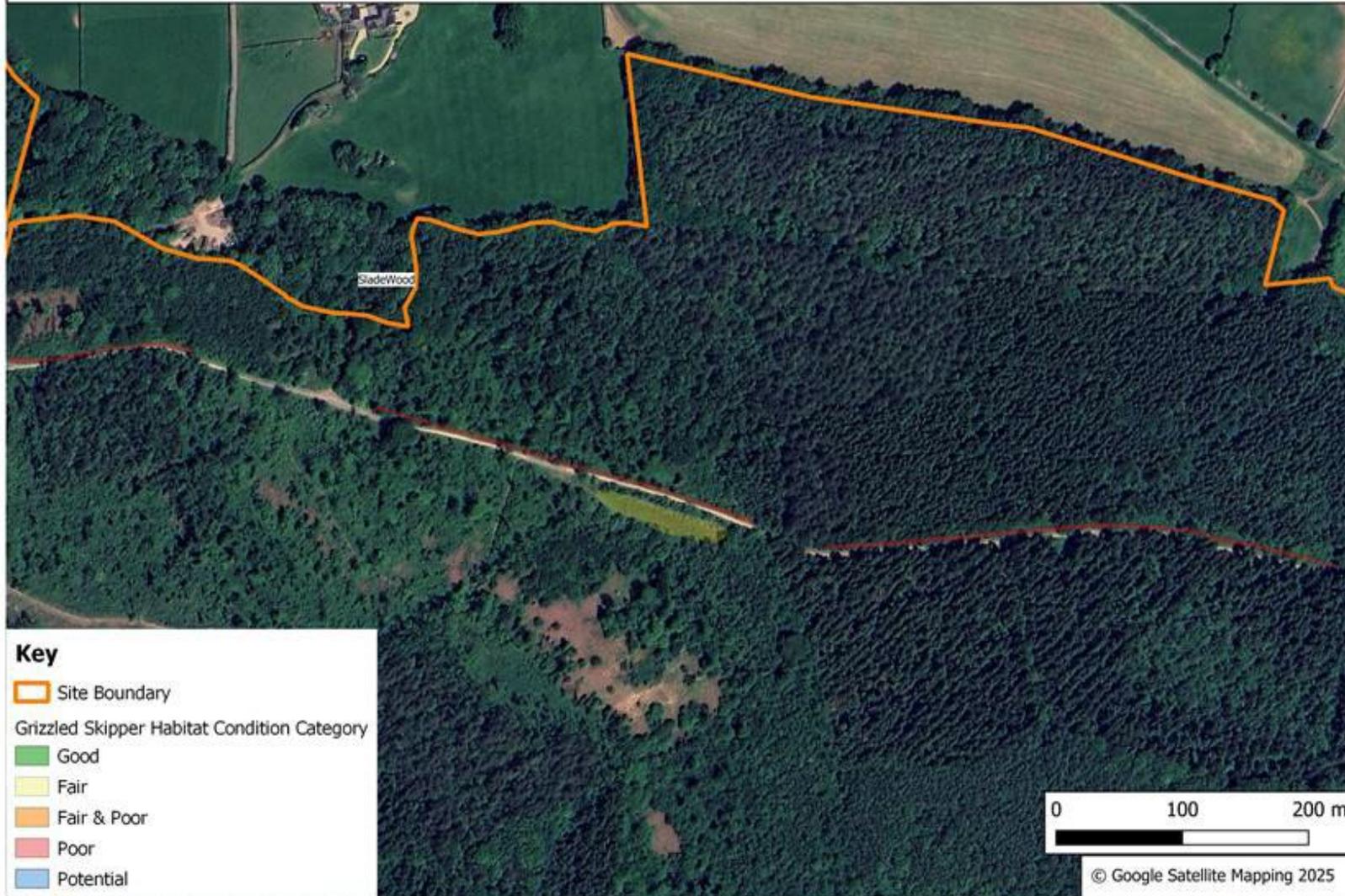
Map 4: Meadow Cuts Undertaken in 2023 & 2024 on the HMP Berwyn Ecological Mitigation Area



## Appendix 6. Slade Wood maps



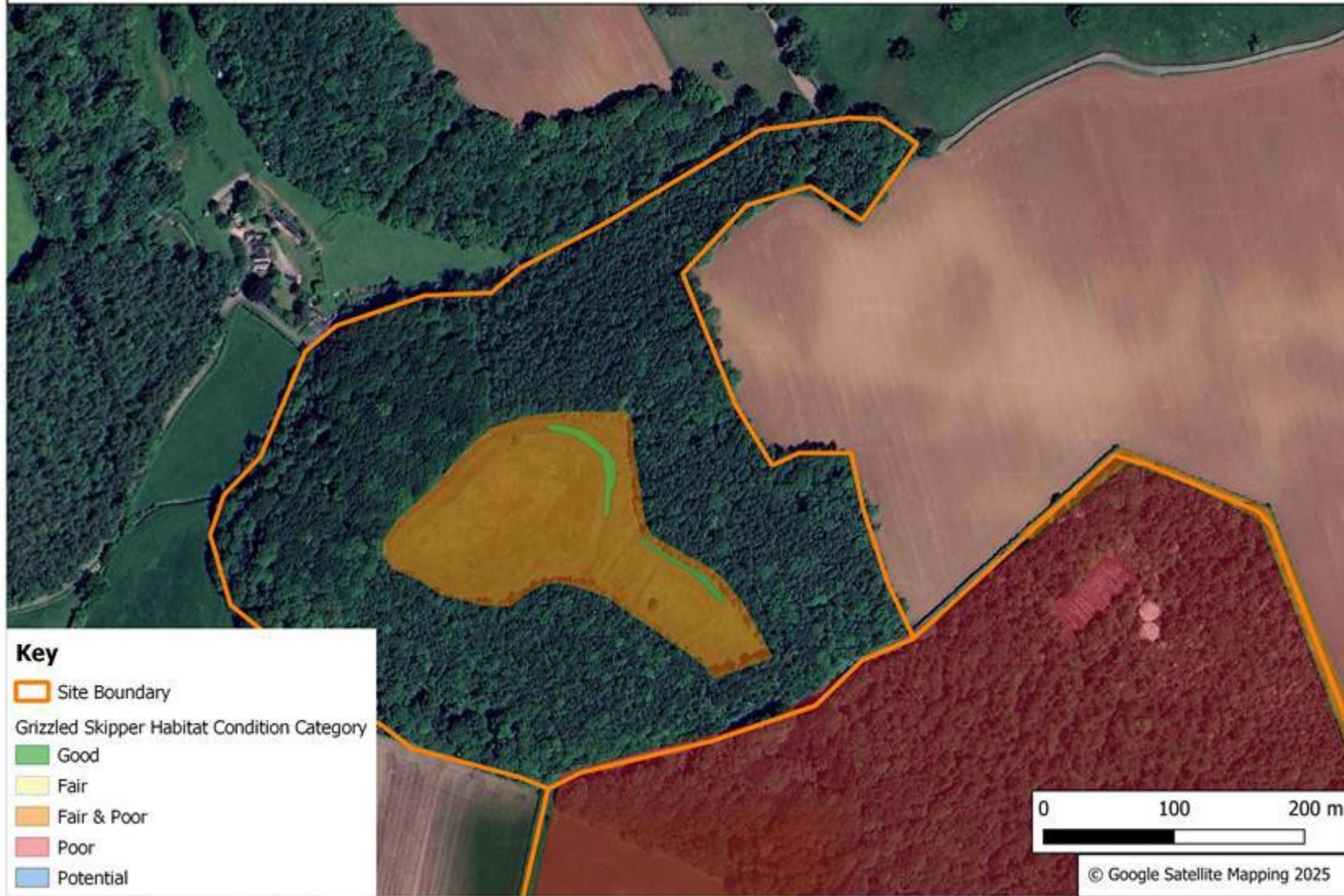
**Map 2: Grizzled Skipper Habitat Condition Assessment for Slade Wood**



## Appendix 7. Llanmelin Hillfort maps



Map 2: Grizzled Skipper Habitat Condition Assessment for Llanmelin Hill Fort



## Appendix 8. MoD Pendine maps



**Map 2: Grizzled Skipper Habitat Condition Assessment for MoD Pendine**

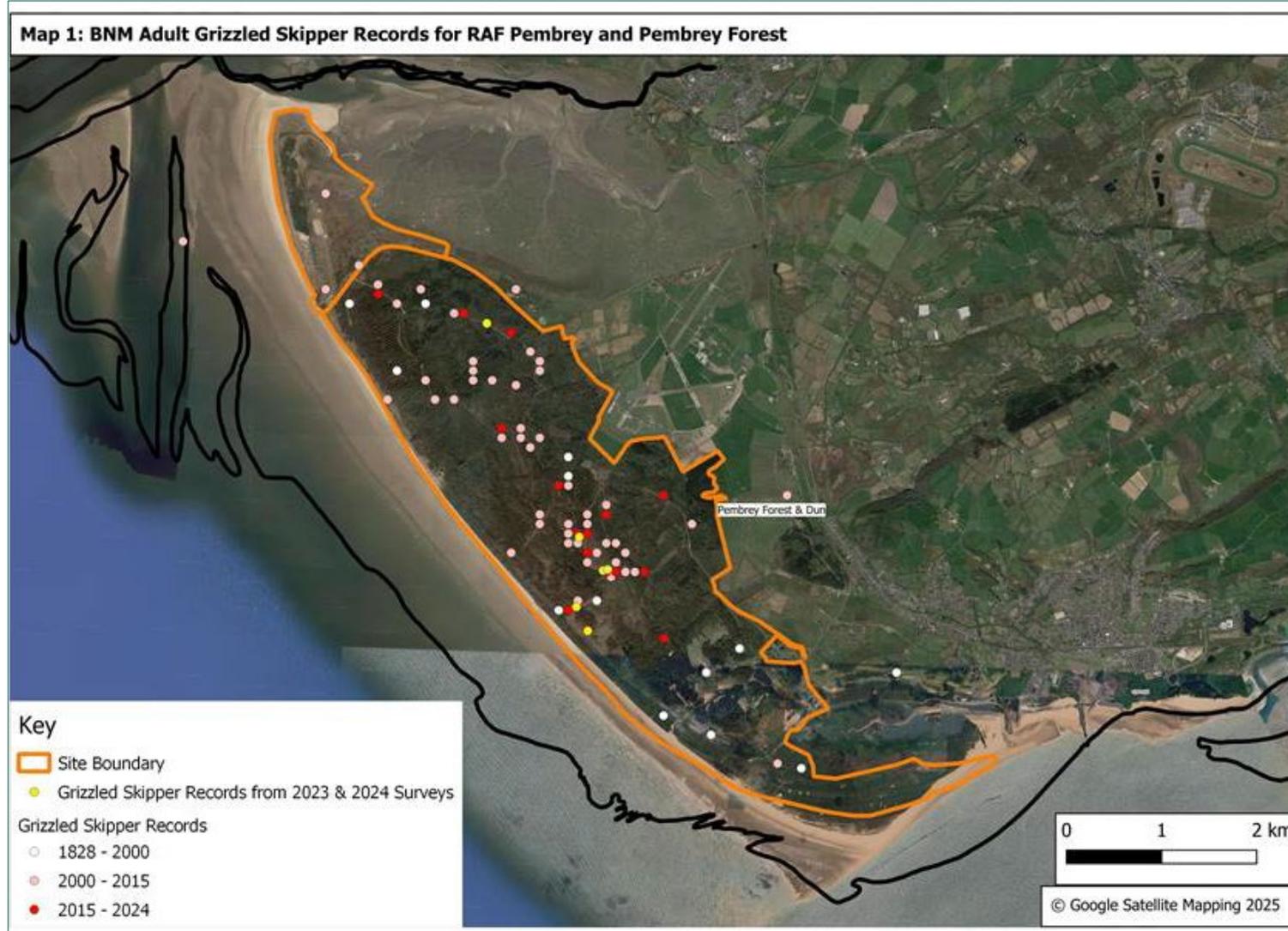


## Appendix 9. Pembrey Forest timed count results 2007-2021

Table 1. Pembrey Forest timed count monitoring data from Track 1 and Track 2.

Grid reference	Date	Year	Total	Time taken	Search area	Index
<b>Track 4</b>	-	-	-	-	-	-
SN384040	18.05.04	2004	4	46	0.5	3
SN384040	27.05.05	2005	10	70	0.5	4
SN384040	05.06.06	2006	0	37	0.5	0
SN384040	21.05.07	2007	2	53	0.5	1
<b>Track 2</b>	-	-	-	-	-	-
SN397015	21.05.07	2007	4	30	0.5	4
SN397015	14.05.08	2008	9	28	0.5	10
SN397015	07.05.09	2009	4	16	0.5	8
SN397015	02.06.10	2010	5	9	0.5	17
SN397015	03.06.11	2011	7	22	0.5	10
SN395015	16.05.12	2012	5	13	0.66	15
SN395015	30.05.13	2013	4	18	0.66	9
SN395015	21.05.14	2014	10	15	0.66	26
SN395015	13.05.15	2015	2	19	0.66	4
SN395015	24.05.16	2016	1	26	0.66	2
SN395015	10.05.17	2017	2	21	0.66	4
SN395015	21.05.18	2018	4	22	0.66	7
SN395015	13.05.19	2019	6	23	0.66	10
SN395015	04.06.21	2021	3	30	0.66	4

## Appendix 10. Pembrey Aerial Firing Range & Pembrey Forest maps



Map 2: Grizzled Skipper Habitat Condition Assessment for RAF Pembrey



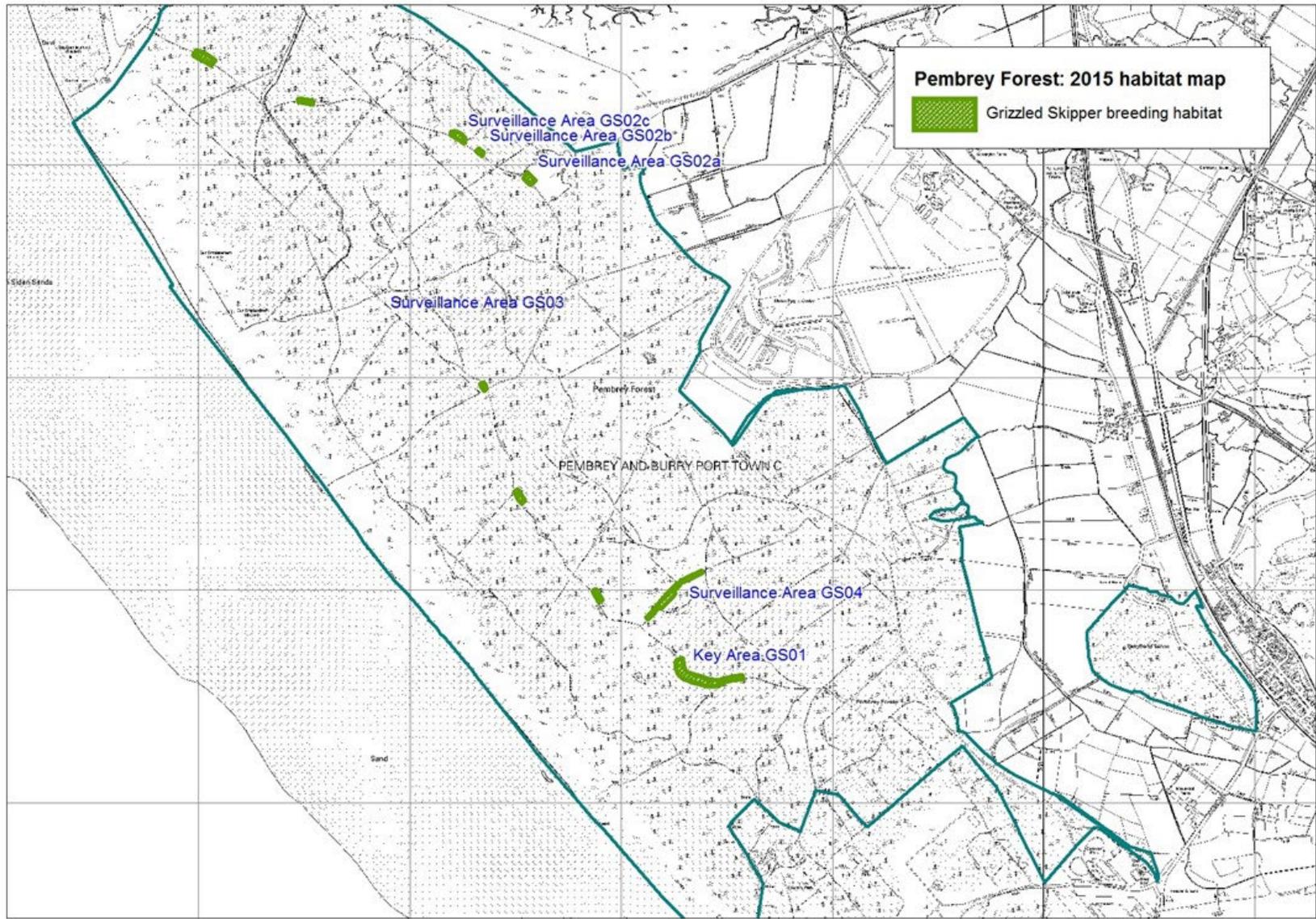
**Map 3: Grizzled Skipper Habitat Condition Assessment for Pembrey Forest**



Map 4. Key Areas in Pembrey Forest for Priority Butterflies and Moths (taken from previous 2017 work)



**Map 5. Grizzled Skipper Monitoring Areas and Addition Breeding Areas from Mapped in 2015.**



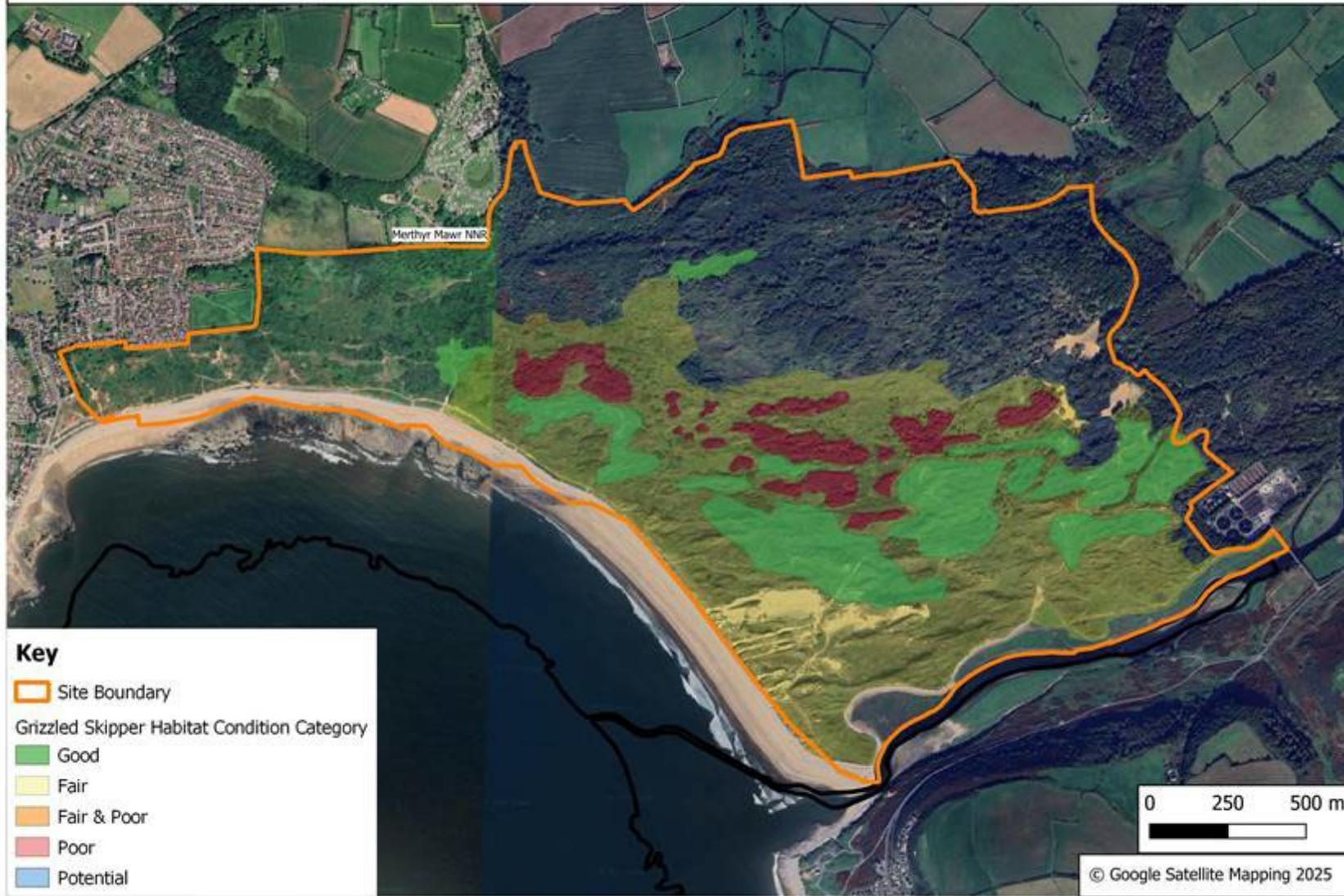
**Map 6. Detailed Maps of the Grizzled Skipper Timed Count Areas on Track 2 and Track 4.**



# Appendix 11. Merthyr Mawr Warren maps



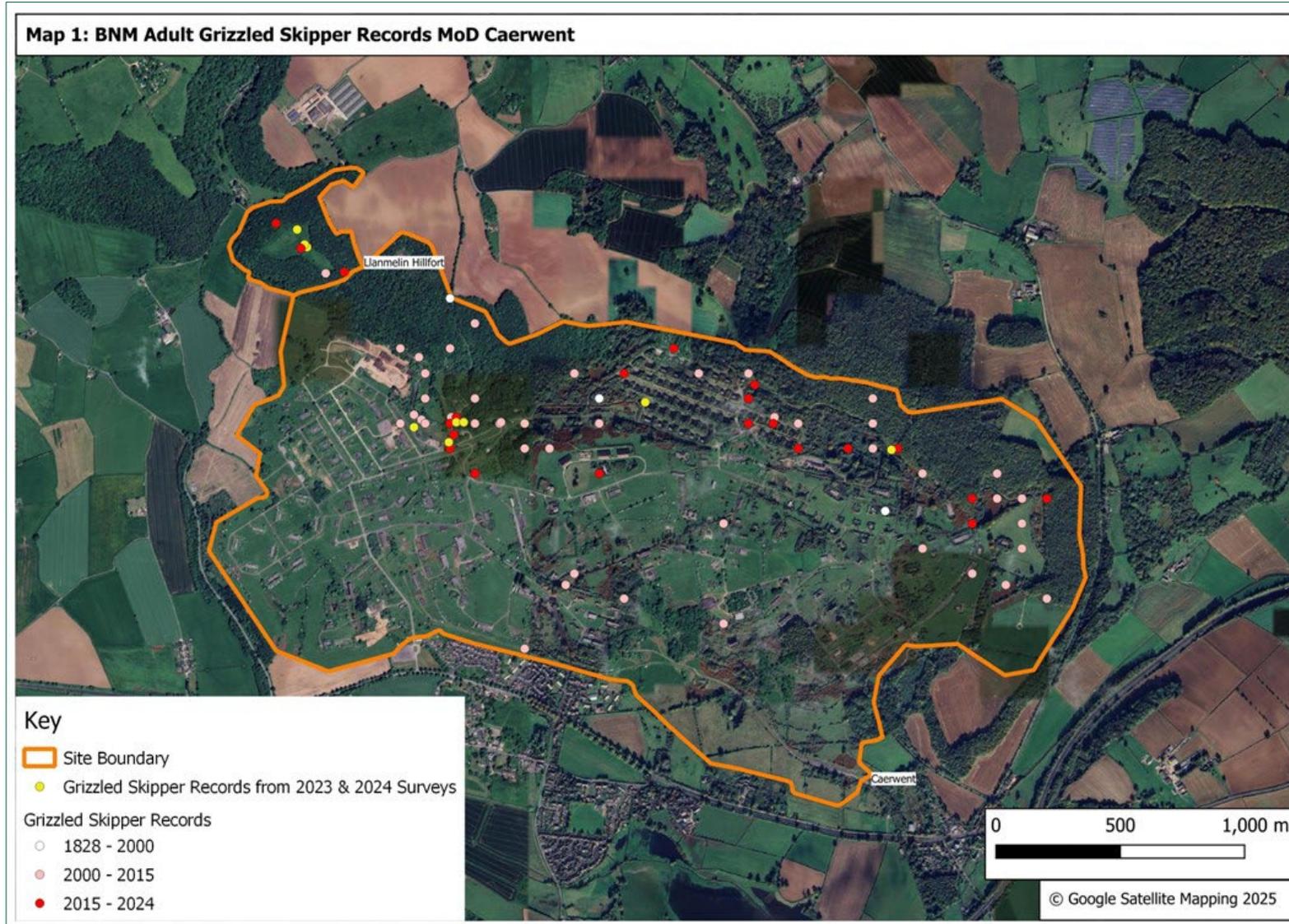
**Map 2: Grizzled Skipper Habitat Condition Assessment for Merthyr Mawr**



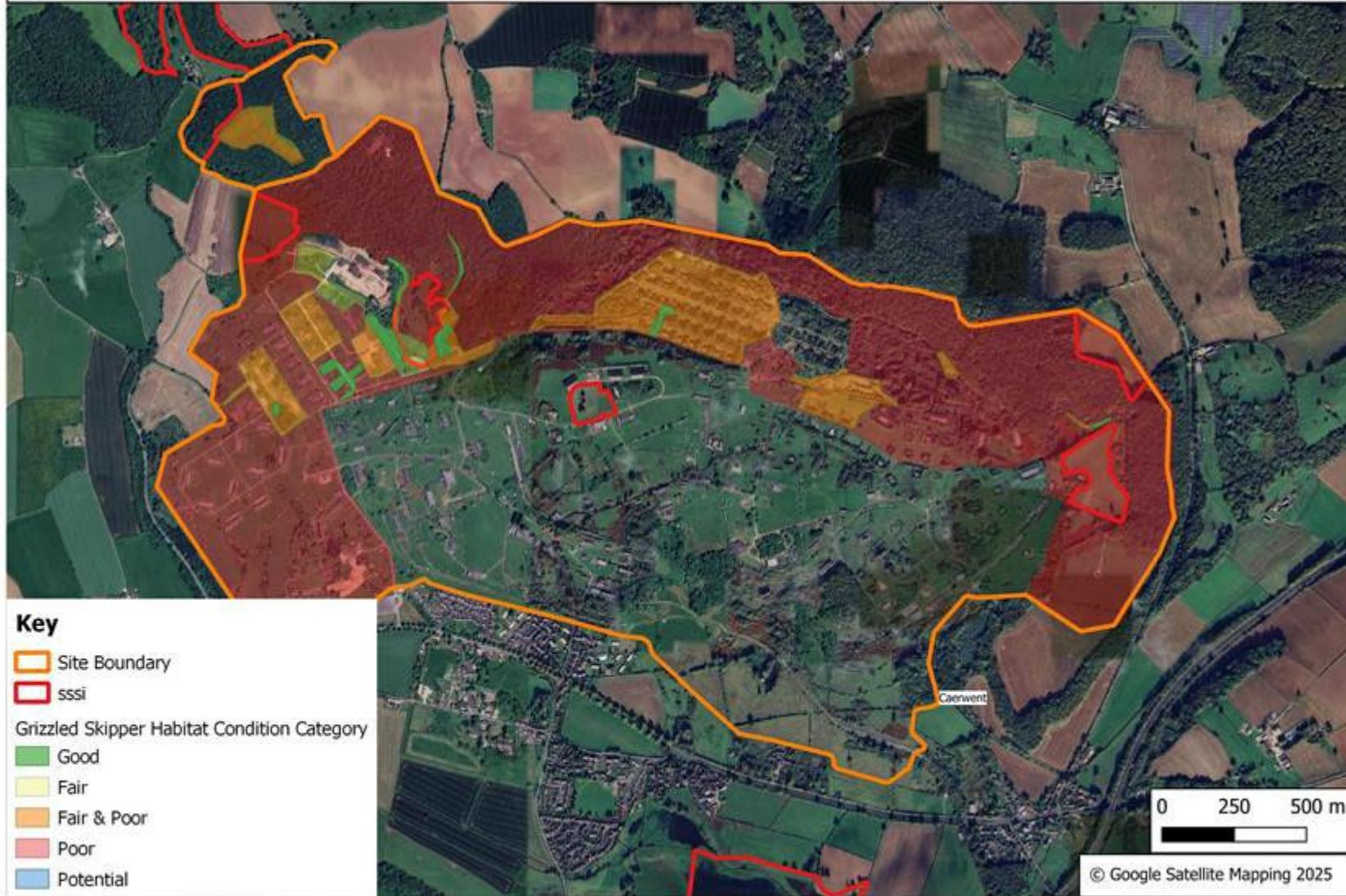
**Maps 3. UKBMS Transect Routes at Merthyr Mawr – Merthyr Mawr NNR (left) and Merthyr Mawr NNR2 (right).**



# Appendix 12. MoD Caerwent



**Map 2: Grizzled Skipper Habitat Condition Assessment for MoD Caerwent**



## Appendix 13. Site target notes

**Table 1. Llanymynech Rocks (MWT). Grizzled Skipper Survey 2023 target notes**

Site name	Target note no.	Grid ref	Target note
Llanymynech Rocks MWT	1	-	<p>Upper enclosure. Steep west facing slope dominated by Blackthorn scrub and Bramble over mosaic of grassland and moss. Band of Bracken adjacent to lower fence line. Occasional Wild Strawberry, within sward of variable structure. Abundant nectar and seed heads from previous year. Reasonably sheltered by surrounding scrub and trees.</p> <p>Condition: Fair</p> <p>Recommend: Scrub clearance to maintain open grassland, leaving pockets to provide habitat and shelter. Would benefit from grazing to manage sustainably.</p>
Llanymynech Rocks MWT	2	-	<p>Path from enclosure gate north to Golf Course. Banked verge to east of path with Occasional patches of Wild Strawberry. To the west lies a coppice area with Occasional/Rare Wild Strawberry patches. Area sheltered but quite shaded. Some nectar, limited seed heads.</p> <p>Condition: Poor</p>
Llanymynech Rocks MWT	3	-	<p>Path verges supporting Frequent Wild Strawberry at edge of scrub / bracken. More open than verges to north. Variable sward height and good nectar and seed heads.</p> <p>Condition: Fair</p> <p>Recommend: Scallop scrub / bracken edge in sections to extend suitable habitat and reduce shading of verge.</p>
Llanymynech Rocks MWT	4	-	<p>Area dominated by scree with Abundant Common Rockrose. Small patches of Wild Strawberry present. Scrub invading throughout. Some nectar and seed heads with limited taller vegetation.</p> <p>Condition: Fair.</p> <p>Recommend: push back scrub to edge of area retaining pockets for habitat &amp; shelter.</p>
Llanymynech Rocks MWT	5	-	<p>Area supporting mosaic of grassland and scree. Abundant larval foodplant - Salad Burnet, nectar and seed heads from previous year in a variable sward. Scrub invading some areas, especially west of the footpath.</p> <p>Condition: Good</p> <p>Recommend: Clear scrub invading area, leaving pockets as habitat and shelter.</p>

Site name	Target note no.	Grid ref	Target note
Llanymynech Rocks MWT	6	-	<p>Area of scree, grassland patches and scrub with Abundant Common Rockrose. Limited Wild Strawberry present. Very short sward with limited taller vegetation.</p> <p>Condition: Poor</p>
Llanymynech Rocks MWT	7	-	<p>Area supporting variable sward grassland with varying topography (banks, hummocks and hollows). Abundant Wild Strawberry throughout, often over short vegetation and bare ground or rock. Nectar and seed heads also abundant. Good shelter provided by topography and scattered scrub within area and around the margins.</p> <p>Condition: Good</p> <p>Recommend: Clear some of scrub in area interior to better link up grassland patches and push back scrub edge.</p>
Llanymynech Rocks MWT	8	-	<p>Lower enclosure. Small amount of Wild Strawberry present in open grassland area near to enclosure entrance. Rest of area dominated by dense bracken and bramble, no access – impenetrable.</p> <p>Condition: Poor</p> <p>Recommend: Scrub and bracken management to open up areas and create habitat edges to encourage establishment of foodplants including Wild Strawberry and violets.</p>
Llanymynech Rocks MWT	9	-	<p>Limestone grassland with Wild Strawberry locally frequent around the margins of the area and occasionally on the south-facing slope. Good nectar and seed heads, sward reasonably variable with some shelter.</p> <p>Condition: Fair</p>
Llanymynech Rocks MWT	10	-	<p>Small area supporting abundant Wild Strawberry over short vegetation and/or rocks. Some taller vegetation, nectar and scattered scrub present.</p> <p>Condition: Good.</p>
Llanymynech Rocks MWT	11	-	<p>Steep hillside, occasional pockets of Wild Strawberry present in moss dominated sward. Vegetation very short with limited taller areas and some shelter.</p> <p>Condition: Poor.</p>
Llanymynech Rocks MWT	12	-	<p>South-facing slope supporting limestone grassland with scattered bracken. Wild Strawberry frequent in short sward. Good nectar and reasonable shelter.</p> <p>Condition: Good.</p>
Llanymynech Rocks MWT	13	-	<p>Limestone grassland with occasional Wild Strawberry within short sward. Little longer vegetation present. Some nectar and small areas of taller vegetation and nectar present.</p> <p>Condition: Fair &amp; Poor</p>

Site name	Target note no.	Grid ref	Target note
Llanymynech Rocks MWT	14	SJ26432 21609	<p>Area of limestone waste tips and lookout. Series of ridges and hollows, sparse grassland and scattered scrub. Short sward. Wild Strawberry present on banks and at scrub edge where more protected from grazing; Wild Strawberry patchier in the north than in the south of the area. Some nectar, seed heads and areas of taller vegetation present.</p> <p>Condition: Fair.</p>
Llanymynech Rocks MWT	15	-	<p>Western edge of disused quarry. East-facing slope supporting abundant bare ground, short grassland patches and Frequent Wild Strawberry in amongst scattered scrub. Good nectar source and seed heads in surrounding area.</p> <p>Condition: Good.</p>
Llanymynech Rocks MWT	16	SJ26460 21731	<p>Western half of disused quarry supporting large area of short grassland, scree and scrub. Some use by bikes. Varied topography with banks/slopes of varying steepness and aspect. Wild Strawberry locally frequent in association taller grassland patches, ranker hollows and exposed areas and banks. Majority of grassland sward short (rabbit grazed) on flatter areas. Scattered scrub present. Abundant Bird's-foot Trefoil. Area fenced to north – see TN 18.</p> <p>Condition: Fair.</p>
Llanymynech Rocks MWT	17	SJ 26464 21747	<p>Large open flat area within disused quarry. Majority of grassland sward very short (rabbit grazed). Wild Strawberry very limited – Occasional. Fairly nectar-rich (Birds's-foot Trefoil, hawkweeds, primrose, daisy etc). Scattered scrub.</p> <p>Condition: Poor.</p>
Llanymynech Rocks MWT	18	SJ26414 21754	<p>Fenced area of quarry. Used by group for abseiling/climbing. Majority of grassland sward very short (rabbit grazed). Wild Strawberry occasional, largely limited to edges of scrub and paths (areas in west mapped as Fair). No access to steep slopes in east area due to safety constraints.</p> <p>Condition: Poor.</p>
Llanymynech Rocks MWT	19	SJ26483 21645	<p>Eastern edge of disused quarry supporting limestone grassland on steep banks, hummocks and hollows. Wild Strawberry abundant in amongst Hawthorn scrub and at scrub margins. Some areas dominated by scrub and Clematis.</p> <p>Condition: Good.</p> <p>Recommend: clear pockets of scrub to increase grassland habitat whilst maintaining mosaic and associated shelter. Localised disturbance by scrub removal to encourage spread of foodplant.</p>

**Table 2. Llanymynech Golf Course Grizzled Skipper survey 2023 target notes**

Site name	Target note no.	Grid ref	Target note
Llanymynech Golf Course	1	SN26614 22004	<p>East-facing bank around edge of car park which has been left uncut. Abundant wildflowers (nectar). Scrub to north but little along rest of bank. Wild Strawberry present at the top of the bank over bare ground and in occasional pockets elsewhere. Creeping Cinquefoil also present, especially at the top of the bank. Longer vegetation (grasses and taller herbs) and bramble present.</p> <p>Condition: Fair.</p>
Llanymynech Golf Course	2	-	<p>Area of uncut grassland at edge of fairway. Largely grass dominated with some mossy areas; limited nectar. Strawberry Occasional to Locally Frequent. Little/no short vegetation or bare ground.</p> <p>Condition: Poor</p> <p>Recommend: could cut areas around strawberry to encourage foodplant spread, create structural variability and enhance habitat suitability.</p>
Llanymynech Golf Course	3	-	<p>Recently created ride running parallel to the Golf Club access road. Thin band of trees/scrub (approx. 6m) left between cleared area and Golf Course. Cleared area broadens into a triangular shape at its northern end. Frequent nectar, abundant bare ground, Wild Strawberry present, occasional in the south becoming abundant further north. Some Creeping Cinquefoil and small patches of Agrimony present. Vegetation mosaic with good shelter present.</p> <p>Condition: Good.</p>
Llanymynech Golf Course	4	-	<p>Area of grassland with abundant nectar. Agrimony and Creeping Cinquefoil Locally Frequent. Vegetation mosaic present with taller vegetation and some limited patches of shorter vegetation. Limited shelter. Scrub at western end has been cleared with bramble regenerating. To the south of the footpath and along the cliff edge larval foodplants become more limited.</p> <p>Condition: Fair</p> <p>Recommend: allow some scrub to develop to provide habitat and shelter.</p>

Site name	Target note no.	Grid ref	Target note
Llanymynech Golf Course	5	-	Area of recently cleared woodland/scrub, largely now dominated by bramble.  Condition: Poor
Llanymynech Golf Course	6	-	Area of uncut grassland between fairways. Frequent Creeping Cinquefoil, Wild Strawberry and Agrimony. Limited short vegetation (mainly in the south of the area where moss dominates and nectar more abundant), little/no bare ground and limited shelter. Upper two-thirds more suitable. Needs to be more of a mosaic.  Condition: Fair & Poor  Recommend: could cut areas around strawberry to encourage foodplant spread, create structural variability and enhance habitat suitability.
Llanymynech Golf Course	7	-	Uncut area of grassland, limited foodplants.  Condition: Poor.
Llanymynech Golf Course	8	-	Area of grassland, Occasional Creeping Cinquefoil but sward structure unsuitable.  Condition: Poor.
Llanymynech Golf Course	9	-	Bank with west and east facing sides. East facing side is less grassy with more larval foodplants – Wild Strawberry, Agrimony, Creeping Cinquefoil and some bramble. Some longer vegetation up to 30cm present, no seed heads. Exposed with limited shelter.  Condition: Fair.
Llanymynech Golf Course	10	-	Square shaped bank with sides facing all aspects. Larval foodplants Agrimony (most frequent) and Wild Strawberry frequent at bank base and in shorter vegetation. Good amount of nectar sources present. No scrub.  Condition: Fair.  Recommend: could scarify areas to enhance suitability and allow small areas of scrub to develop to provide some shelter.
Llanymynech Golf Course	11	-	Grassland area just west of track. Large Hawthorn present. Occasional larval foodplants - Creeping Cinquefoil and Agrimony. Sward structure largely uniform with a few shorter patches present. Bare ground limited.  Condition: Fair

Site name	Target note no.	Grid ref	Target note
Llanymynech Golf Course	12	-	<p>South-facing bank to west of Hawthorn tree and above fairway. Gentle slope to east becoming steeper below the cliff. Larval foodplants – Wild Strawberry, Creeping Cinquefoil Occasional to Frequent. Good structure overall but limited bare ground &amp; short vegetation. Bramble and Honeysuckle invading.</p> <p>Condition: Fair.</p> <p>Recommend: requires rotational clearance / grazing.</p>
Llanymynech Golf Course	13	-	<p>Bank below fairway (runs between fairways). South facing. Recently cleared. Part of bank dominated by Honeysuckle with area to east dominated by bracken. Bramble invading. Very limited larval foodplants. Too much scrub and too little larval foodplants. Little nectar.</p> <p>Condition: Poor.</p>
Llanymynech Golf Course	14	-	<p>South-east facing bank recently cleared of scrub. Currently largely supporting cut brash and bare ground with bramble and patchy bracken. Bands of woodland remain to the north and south providing shelter. Occasional Wild Strawberry present, very little nectar and limited structure (no mosaic). Will hopefully improve in future years.</p> <p>Condition: Poor.</p>
Llanymynech Golf Course	15	-	<p>Small recently cleared area. Bracken present with Occasional Wild Strawberry.</p> <p>Condition: Poor.</p>
Llanymynech Golf Course	16	-	<p>Recently cleared scallop.</p> <p>Condition: Fair.</p>
Llanymynech Golf Course	17	-	<p>Area of scrub including mature Hawthorn. Creeping Cinquefoil present at the scrub edge – potential to scallop edges to create suitable habitat and maintain shelter.</p> <p>Condition: Potential.</p>

Site name	Target note no.	Grid ref	Target note
Llanymynech Golf Course	18	-	<p>Southern part of large bowl-shaped east-facing bank. This part has been cleared in the past few years. Abundant nectar, larval foodplants Occasional - Wild Strawberry, Agrimony, and Creeping Cinquefoil. Limited shelter on bank itself. Some rock providing bare substrate. Lots of scrub invading lower area.</p> <p>Condition: Fair.</p>
Llanymynech Golf Course	19	-	<p>Area below cliffs. Dominated by bramble, Honeysuckle and Hawthorn. Upper parts are slightly more suitable than the lower parts.</p> <p>Condition: Poor.</p>
Llanymynech Golf Course	20	-	<p>Area better than that in TN19. Less scrub present.</p> <p>Condition: Fair.</p>
Llanymynech Golf Course	21	-	<p>Recently cleared area to south of rock face. Currently poor for Grizzled Skipper.</p> <p>Condition: Poor.</p>
Llanymynech Golf Course	22	-	<p>Bracken area, abundant nettles. Little/no larval foodplants present.</p> <p>Condition: Poor.</p>
Llanymynech Golf Course	23	-	<p>Recently cleared area. Larval foodplants present in a few patches. Currently poor condition.</p> <p>Condition: Poor</p>
Llanymynech Golf Course	24	-	<p>Areas cleared in recent years. Bracken and nettles. Very limited larval foodplants.</p> <p>Condition: Poor.</p>
Llanymynech Golf Course	25	-	<p>Bank with south-east and north-west facing sides. Uncut grassland. Abundant nectar. Patchy Wild Strawberry especially on north-west side. Little short vegetation or bare ground and limited scrub. Would benefit from more of a mosaic.</p> <p>Condition: Fair.</p>
Llanymynech Golf Course	26	-	<p>Recently cleared south-east facing bank, previously dominated by bracken and scrub. South-western third supports frequent Wild Strawberry. Reasonable shelter but nectar limited. Area becomes more grass dominated with Bluebell in north-east.</p> <p>Condition: Fair</p>

Site name	Target note no.	Grid ref	Target note
Llanymynech Golf Course	27	-	Woodland strip at edge of fairway, scalloped, supports abundant nectar (grassland uncut) and frequent larval foodplants.  Condition: Fair
Llanymynech Golf Course	28	-	South facing bank at edge of fairway with light bracken cover. Recently managed. Larval foodplants Frequent to Abundant – Wild Strawberry, Agrimony. Good shelter and some bare ground.  Condition: Good.
Llanymynech Golf Course	29	-	Scrub edge, some bracken recently cut (4-5ft depth). Limited larval foodplants.  Condition: Poor.
Llanymynech Golf Course	30	-	Limited larval foodplants, some bare ground present.  Condition: Poor.
Llanymynech Golf Course	31	-	South/south-east facing bank at edge of fairway. Bracken present. Wild Strawberry present.  Condition: Good
Llanymynech Golf Course	32	-	Bank with deeper bracken thatch (15cm +). Limited larval foodplants.  Condition: Poor.
Llanymynech Golf Course	33	-	Recently managed area, majority has come back dominated by grass & nettles. Very limited larval foodplants or nectar.  Condition: Poor.
Llanymynech Golf Course	34	-	Pearl-bordered Fritillary enclosure. Recently managed with bracken regrowth evident. Limited larval foodplants, good nectar and reasonably sheltered.  Condition: Poor.
Llanymynech Golf Course	35	-	South-facing bank. Some larval foodplants at eastern end (Wild Strawberry) but quickly grades into an area managed less recently with bramble invading along with nettles.  Recommend: manage western area to create suitable habitat.
Llanymynech Golf Course	36	-	Corner of recently managed scrub area. Light bracken cover. Lots of bare ground, shelter and nectar but limited larval foodplants.  Condition: Poor

Site name	Target note no.	Grid ref	Target note
Llanymynech Golf Course	37	-	Recently cleared bracken slope. Low bramble invading throughout. Limited Wild Strawberry present currently.  Condition: Poor.
Llanymynech Golf Course	38	-	Recently cleared north-west facing bank, locally frequent - occasional larval foodplants (Wild Strawberry).  Condition: Fair
Llanymynech Golf Course	39	-	Scallop in woodland edge. Abundant Wild Strawberry, nectar, shelter.  Condition: Fair
Llanymynech Golf Course	40	-	Bracken areas with deep litter.  Condition: Poor.
Llanymynech Golf Course	41	-	Area recently cleared of scrub. Light bracken present. No larval foodplants.  Condition: Poor.
Llanymynech Golf Course	42	-	Condition: Fair
Llanymynech Golf Course	43	-	Thin recently managed margin. Locally frequent Wild Strawberry present.  Condition: Fair.
Llanymynech Golf Course	44	-	Recently cleared area. Light bracken present. Wild Strawberry beginning to come through but currently very limited. Abundant nectar.  Condition: Poor.
Llanymynech Golf Course	45	-	Area of uncut bracken.  Condition: Poor.

**Table 3. HMP Berwyn Ecological Mitigation Area Grizzled Skipper survey 2023 target notes**

Site name	Target note no.	Grid ref	Target note
HMP Berwyn Mitigation Area	1	-	<p>North-western part of the ecological mitigation area. Damp species-rich neutral grassland dominated by tall perennials including Meadow Buttercup and umbellifers. Grades into thick scrub in the west. Inaccessible. Unlikely to be potentially suitable habitat in the future. Some larval foodplants visible at the edge of the tall herbs (60-100cm tall). No short vegetation present.</p> <p>Condition: Potential.</p> <p>Recommend: clear majority of scrub back to grassland edge, cut grassland.</p>
HMP Berwyn Mitigation Area	2	-	<p>Species-rich grassland areas present between patchy scrub. Northern half of the area is damper than the south with abundant rush. Occasional nectar present.</p> <p>Southern half of area supports abundant and widespread Creeping Cinquefoil and a variety of nectar sources. Limited shorter vegetation or bare ground present. Scattered scrub provides shelter. Bramble invading grassland from scrub edge. Area extends to encompass grassland to the east, which is a mix of drier grassland and areas dominated by rush.</p> <p>Condition: Fair</p> <p>Recommend: push back scrub edge.</p>
HMP Berwyn Mitigation Area	3	-	<p>Area of tall herbs and bramble between mature scrub – impenetrable</p> <p>Condition: Potential</p> <p>Recommend: clear scrub to link with other potentially suitable areas to the west.</p>
HMP Berwyn Mitigation Area	4	-	<p>Banked area supporting re-seeded grassland supporting a variety of wildflowers including Meadow Buttercup, vetches and clover. Abundant nectar. Occasional patches of large Creeping Cinquefoil plants. Areas of long and short vegetation present but larval foodplant very limited.</p> <p>Condition: Poor.</p> <p>Recommend: some patch cutting of area may encourage spread of larval foodplants or leave to just provide nectar resource.</p>

Site name	Target note no.	Grid ref	Target note
HMP Berwyn Mitigation Area	5	-	<p>Large open species-rich grassland area with some tall scattered scrub in the interior but mainly at the edges. Some low scattered scrub also present. Occasional Agrimony and Frequent Creeping Cinquefoil. Some shorter vegetation also present but limited. Taller vegetation (including seed heads) at the edges and in areas where scrub is invading.</p> <p>Condition: Fair</p> <p>Recommend: push back scrub edge.</p>
HMP Berwyn Mitigation Area	6	-	<p>Species-rich grassland - vegetation structure in this area is taller with limited shorter areas than the area to the east. Creeping Cinquefoil present throughout. Bramble invading.</p> <p>Condition: Fair.</p> <p>Recommend: Bramble requires pushing back to the scrub edge but leaving scattered pockets to provide shelter and as a foodplant/habitat.</p>
HMP Berwyn Mitigation Area	7	-	<p>Tall bramble nettles and tall herbs.</p> <p>Condition: Potential.</p> <p>Recommend: clear to maintain connectivity between grassland areas to west and east and also to north.</p>
HMP Berwyn Mitigation Area	8	-	<p>Area supporting sandy substrate. Abundant Creeping Cinquefoil and Bird's-foot Trefoil. Varied topography – hummocks and hollows. Scattered scrub (birch and willow) present throughout area reducing habitat suitability.</p> <p>Condition: Fair</p> <p>Recommend: remove scrub from interior of area and retain a scrub edge to provide shelter.</p>
HMP Berwyn Mitigation Area	9	-	<p>Species- rich grassland area dominated by a tall sward with abundant seed heads. Abundant Creeping Cinquefoil present throughout. Sheltered but limited short vegetation/ bare ground.</p> <p>Condition: Fair</p>

Site name	Target note no.	Grid ref	Target note
HMP Berwyn Mitigation Area	10	-	<p>Grassland dominated by bramble. Impenetrable. Likely potentially suitable habitat, unable to access to assess.</p> <p>Condition: Potential</p> <p>Recommend: clear scrub to create open grassland area, retaining band of scrub around perimeter and scattered scrub within grassland.</p>
HMP Berwyn Mitigation Area	11	-	<p>Small area of species-rich grassland supporting abundant Creeping Cinquefoil and Bird's-foot Trefoil in a short sward with bare ground also present. Taller vegetation (including seed heads) present at the margins and well sheltered by surrounding scrub.</p> <p>Condition: Good.</p>
HMP Berwyn Mitigation Area	12	-	<p>Grassland heavily invaded by bramble. Creeping Cinquefoil present but heavily shaded by scrub.</p> <p>Condition: Poor</p> <p>Recommend: scrub clearance to open up grassland area and link with areas north and west.</p>
HMP Berwyn Mitigation Area	13	-	<p>Grassland area heavily invaded by bramble. Creeping Cinquefoil present but heavily shaded by scrub and tall grassland.</p> <p>Condition: Poor</p> <p>Recommend: link up with adjacent grassland areas to the north – areas of dense bramble currently isolating grassland areas.</p>
HMP Berwyn Mitigation Area	14	-	<p>Area of grassland, Creeping Cinquefoil present throughout but majority of vegetation tall /rank with scrub invading. Abundant nectar. Very limited short vegetation.</p> <p>Condition: largely Poor with pockets of Fair.</p>
HMP Berwyn Mitigation Area	15	-	<p>Area viewed from a distance, inaccessible due to vegetation growth. Supports tall herbs.</p> <p>Condition: Poor</p> <p>Recommend: cut area on rotation.</p>
HMP Berwyn Mitigation Area	16	-	<p>Area not accessed. Dominated by tall herbs and bramble. Area to south may be more suitable. Pond present.</p> <p>Condition: unsure if potentially suitable or unsuitable.</p>

Site name	Target note no.	Grid ref	Target note
HMP Berwyn Mitigation Area	17	-	<p>Large area of species-rich neutral grassland. Creeping Cinquefoil widespread throughout. Eastern area supports taller vegetation with more limited shorter areas. Nectar and seed heads present throughout. Scrub invading site interior.</p> <p>Condition: Fair</p> <p>Recommend: push back scrub edge. Remove majority of scrub from patch interior.</p>
HMP Berwyn Mitigation Area	18	-	<p>Large area of species-rich neutral grassland. Abundant and widespread Creeping Cinquefoil in short sward with some bare ground present. Nectar and seed heads present. Scrub invading from margins. Rabbit grazing present throughout.</p> <p>Condition: Good</p> <p>Recommend: push back scrub to margins.</p>
HMP Berwyn Mitigation Area	19	-	<p>Species-rich neutral grassland supporting mosaic of long and short areas, patches of shorter vegetation slightly less than in TN18. Abundant nectar and taller vegetation with seed heads present and well sheltered.</p> <p>Condition: Good.(with pockets of Fair)</p>
HMP Berwyn Mitigation Area	20	-	<p>Grassland area similar to that of TN19 but with a slightly longer sward and fewer areas supporting a shorter sward. Creeping Cinquefoil and Agrimony abundant throughout.</p> <p>Condition: Fair.</p>
HMP Berwyn Mitigation Area	21	-	<p>Damp rush dominated area, limited larval foodplants and bramble invading.</p> <p>Condition: Poor.</p>
HMP Berwyn Mitigation Area	22	-	<p>Cleared path through scrub has provided a sheltered corridor with abundant Creeping Cinquefoil.</p> <p>Condition: Fair</p> <p>Recommend: scallop cutting into edges of scrub would further enhance habitat.</p>

Site name	Target note no.	Grid ref	Target note
HMP Berwyn Mitigation Area	23	-	<p>Area supporting tall herbs with limited shorter vegetation. Larval foodplants present but very shaded. Some small patches of Fair condition habitat present but bramble heavily invading.</p> <p>Condition: Poor</p> <p>Recommend: clear scrub from area and cut grassland on rotation to retain suitability.</p>
HMP Berwyn Mitigation Area	24	-	<p>Grassland area with abundant Creeping Cinquefoil, nectar with patches of shorter vegetation along the track/path.</p> <p>Condition: Fair.</p>
HMP Berwyn Mitigation Area	25	-	<p>Unable to access area due to impenetrable vegetation. Appears to be dominated by tall herbs (particularly Meadowsweet), and grasses.</p> <p>Condition: Poor / Potential.</p> <p>Recommend: Cut grassland area on rotation, retain scrub margin and scattered scrub in interior.</p>
HMP Berwyn Mitigation Area	26	-	<p>Large area of species-rich neutral grassland. Creeping Cinquefoil present throughout. Sward dominated by taller vegetation and seed heads with a limited amount of short vegetation. Scrub including bramble invading from edges and extending into site interior in places.</p> <p>Condition: Fair</p> <p>Recommend: cut grassland on rotation to produce mosaic and scarify some areas.</p>
HMP Berwyn Mitigation Area	27	-	<p>Bramble invading grassland area.</p> <p>Condition: Poor.</p> <p>Recommend: clear bramble back to scrub edge.</p>

Site name	Target note no.	Grid ref	Target note
HMP Berwyn Mitigation Area	28	-	<p>Sheltered grassland area. Creeping Cinquefoil present throughout. Limited short vegetation. Abundant nectar. Small trees and scrub invading interior with bramble particularly prominent at the edges. Scrub has invaded the upper and lower western parts of the spur.</p> <p>Potential location for a butterfly scrape.</p> <p>Condition: Fair</p> <p>Recommend: clear scrub from western parts of the spur. Cut grassland on rotation.</p>
HMP Berwyn Mitigation Area	29	-	<p>Area not accessible due to rank vegetation – dominated by bramble and tall herbs. Difficult to assess potential suitability.</p> <p>Condition: Potential (?).</p>
HMP Berwyn Mitigation Area	30	-	<p>Path between scrub, shaded at southern end but more open to the north.</p> <p>Condition: Fair</p>
HMP Berwyn Mitigation Area	31	-	<p>Path to/from entrance gate. Abundant larval foodplants present over short vegetation and bare ground. Becoming shaded by adjacent trees.</p> <p>Condition: Good.</p> <p>Recommend: scarify path and push back invading scrub to the edges.</p>
HMP Berwyn Mitigation Area	32	-	<p>Area around pond. East-facing bank and bare ground. Frequent Creeping Cinquefoil and Abundant Bird's-foot Trefoil.</p> <p>Condition: Fair</p>
HMP Berwyn Mitigation Area	33	-	<p>Narrow area of grassland with tall grasses to either side. Abundant Agrimony present but no shorter vegetation. Bramble invading.</p> <p>Condition: Fair</p>
HMP Berwyn Mitigation Area	34	-	<p>Sheltered pocket of grassland with some shorter areas present. Taller vegetation at margins. Scrub invading including bramble.</p> <p>Condition: Fair</p>
HMP Berwyn Mitigation Area	35	-	<p>Track running parallel to main entrance track. More shaded.</p> <p>Recommend: clear scrub and push back to margins.</p>

Site name	Target note no.	Grid ref	Target note
HMP Berwyn Mitigation Area	36	-	HMP Berwyn perimeter grassland. Dominated by rush and Meadow Buttercup. Abundant nectar but no larval foodplants visible.  Condition: Poor / Unsuitable

**Table 4. MoD Caerwent Grizzled Skipper survey 2024 target notes**

Site name	Target note no.	Grid ref	Target note
Caerwent Training Area	Zone 1	ST46599184	<p>0.19ha area of grassland situated between two roads adjacent to one of the enclosed SSSI meadows and a small stand of trees. The area is open to unregulated grazing but did have a scattering of nectar sources and wasn't showing signs of being completely overgrazed. Seed heads from the previous year were thinly scattered and embankment supporting the road had bare patches of ground with some Wild Strawberry. Lack of scrub.</p> <p>The zone produced 1 Grizzled Skipper on the wing and nectaring</p> <p>Condition: Good</p> <p>Recommendations: The area would benefit from better control over the grazing which would help a richer mosaic of scrub and grassland. It would also lead to more nectar sources going to seed and spreading. Creating more bare patches on the south-west facing slope by scraping ground or tipping low nutrient soil would benefit the area greatly.</p>
Caerwent Training Area	Zone 2	ST46679181	<p>0.58ha area of grassland which is the southern section of one of the Dinham Meadows SSSI's. The wider field complex is fenced but appears to be treated as a single grazing unit. The zone has a good south-facing slope and there is some bare ground. However, the tightly grazed vegetation with lack of nectar sources (during grizzled skipper flight period) and no scrub makes it poor for the butterfly.</p> <p>The zone did not produce any Grizzled Skipper sightings</p> <p>Condition: Poor</p> <p>Recommendations: If the conditions of the SSSI allow then the zone would benefit from different grazing regime to the rest of the field complex. This would of course require a new fence to be installed. The management of this compartment would encourage the spread and abundance in nectar sources and allow some of the seed head to stand into following year. The zone would also benefit from creating patches of bare ground and keeping them thinly vegetated.</p>

Site name	Target note no.	Grid ref	Target note
Caerwent Training Area	Zone 3	ST46769177	<p>0.50ha area of grassland with scattered scrub. The zone is dissected by a winding road which passes between stoney embankments in the north of the zone. This northern part of this zone had particularly good habitat conditions for Grizzled Skippers with abundant nectar source, good availability of seed heads and scattered patches of bare ground – particularly on the embankments. There was also an abundance of Wild Strawberry here. Previous records of Grizzled Skipper have been made here so it was good to find them still present. But perhaps the most interesting thing about this zone is that it is not enclosed and that the habitat maintains high value to Grizzled Skippers despite being adjacent to a wider area that is particularly overgrazed.</p> <p>The zone produced 6 Grizzled Skipper and 1 Dingy Skipper</p> <p>Condition: Good</p> <p>Recommendations: No intervention needed in the short-term but it will be interesting to monitor, grassland species diversity, scrub encroachment and bare ground patches. It will probably be worth using the best parts of this zone as an example for habitat creation in similar parts of the site where keeping control over grazing is difficult.</p>
Caerwent Training Area	Zone 4	ST46769186	<p>0.37ha grassland with scattered scrub. This zone is immediately north of zone 3 but stock are kept from here using fencing and cattle grid. The road that dissects zone 3 continues through this zone with stoney embankments on both sides. An open area of grassland with thinly scattered scrub is found on the east of the road forms a slightly elevated plateau. The open nature of this plateau might be the result of annual habitat management operations? The embankments provide the crucial mosaic of habitat conditions that Grizzled Skippers thrive in. However, elsewhere in this zone nectar sources and foodplant are uncommon including on the plateau. The micro climate found in this zone was attractive a number of butterflies and was one of the best zones on the site.</p> <p>The zone produced 5 Grizzled Skippers and 6 Dingy Skippers</p> <p>Condition: Good</p> <p>Recommendations: Continue with current habitat management in this zone. The only actions that might improve the plateau area would be to introduce bare ground by creating mounds or banks with imported low nutrient ground. Also if any vegetation/scrub cutting is being carried out it will be worth trying to remove the arisings from the area.</p>

Site name	Target note no.	Grid ref	Target note
Caerwent Training Area	Zone 5 5	ST46829205	<p>1.43ha of deciduous woodland with clearing. This zone is further north than zone 4 and represents a transition from grassland dominated zone into one dominated by woods. There is an access track that travels the full length of the zone roughly in two as it runs its full length. There is also a clearing to the west of the track in the southern half of the zone which appears to be cut frequently. The margins of the of both sides of the track contained abundant nectar source, foodplants and bare ground. The clearing created a nice sheltered spot where common butterflies such as Peacock and Green-veined Whites were on the wing, but no Grizzled Skippers or Dingy Skippers were noted. The clearing did have some scrub along the margins which created a nice transition from cut area to surrounding trees. However, the clearing was lacking in nectar sources and bare ground.</p> <p>The zone did not produce any Grizzled Skipper sightings</p> <p>Condition: Good</p> <p>Recommendations: This zone was similar in quality to zone 8, which is further east on the site, and holds Grizzled Skippers. This gives optimism that this zone might also be valuable to them with a few changes. The main change that would benefit the zone would be to introduce bare ground as a much more dominant feature in the clearing. Ideally this might be the introduction of poor nutrient soil which could be shaped to for banks and dips. The clearing appears to be nutrient rich with broad grasses dominating flowering plants so any future clearance works would be advised to scrape arisings from area after cutting.</p>

Site name	Target note no.	Grid ref	Target note
Caerwent Training Area	Zone 6	ST47539194	<p>0.30ha area of grassland with scattered scrub. The highest count and density of Grizzled Skipper sightings came from this zone. The main feature of this zone is the tall and steep embankment. The embankment is roughly shaped like a 'T' with favourable slopes facing South, East and West. A particularly good South-east facing corner producing a early morning suntrap. The area was textbook Grizzled Skipper habitat with an abundance of nectar sources and foodplants. Lots of seedheads and areas of bare ground. It was difficult to tell whether the embankment was being managed to maintain its openness or whether the soil conditions meant that the habitat condition remains fairly stable?</p> <p>The zone produced 10 Grizzled Skippers and 2 Dingy Skippers</p> <p>Condition: Good</p> <p>Recommendations: This zone is extremely important to the Grizzled Skipper population on site that produced the highest density of sightings from South Wales from surveys conducted in 2023 and 2024. Therefore, recommendations would be to highlight the value of this spot to all partners and continue with current habitat management or monitor closely to track any detrimental changes to the zone</p>
Caerwent Training Area	Zone 7	ST47699202	<p>5.52ha area of mixed habitats. This zone is in close proximity to zone 6 and holds a significant area of SSW facing banks and it is these features that were of most interest. The banks are dominated by grassland with regular patches of scrub which form large stands in places. The grassland was not particularly floristically rich and was dominated by broad grasses. There was a lack of bare ground but Wild Strawberry was found scattered widely throughout the zone.</p> <p>The zone did not produce any Grizzled Skipper sightings</p> <p>Condition: Fair</p> <p>Recommendations: Given the close proximity to the highly valuable zone 6 there is an opportunity to manage the SSW facing banks of this zone to create matching habitat conditions. There does appear to be management operations ongoing to keep scrub from dominating the banks. Therefore it would be worthwhile investigating whether these operations could be fine-tuned to create more structure to the vegetation on the banks and create more bare ground.</p>

Site name	Target note no.	Grid ref	Target note
Caerwent Training Area	Zone 8	ST48529174	<p>0.24ha area of deciduous woodland with clearing. This zone was the only example of a clearing supporting Grizzled Skippers on site. The important steep south facing banks contributed to large areas in this zone. An embankment cutting north of the road was thinly vegetated with lots of foodplant and bare soil. A long and fairly tall embankment supporting the road was dominated by grassland. Further south of the road mounds of soil created lots of banks which were covered in a thick sward but with occasional patches where broad grasses were less dominant which supported some nectar sources and exposed soil. It was not clear whether this area was being managed for its ecological value or not. The transition from clearing to mature trees was fairly abrupt and so low level scrub was largely missing. Small patches of Wood Spurge were found along parts of the woodland edge</p> <p>The zone produced 6 Grizzled Skipper, 4 Dingy Skippers and 4 Drab Loopers</p> <p>Condition: Fair</p> <p>Recommendations: The clearing was only thinly populated in nectar sources and bare ground and so addressing that would have a positive impact. Of all the population hotspots this one feels like it is closest to losing Grizzled Skippers in the future. However, they are still present here and so intervention in habitat management should be carefully planned. It would be worth monitoring the zone closely on an annual basis to track changes. It is also worth noting that if this clearing continues to support Grizzled Skippers it should be used as a model for creating clearings elsewhere on site if possible</p>

Site name	Target note no.	Grid ref	Target note
Caerwent Training Area	Zone 9	ST48359188	<p>1.30ha area of deciduous woodland with overgrown clearing. This zone was included for two reasons. First it supports the best habitat conditions for Drab Looper. Second it has potential to create a corridor for Grizzled Skipper movement between population hotspots. A road running through this zone creates a butterfly ride and the embankment on the north of the road catches the afternoon sun. The embankment has a good mixture of nectar sources, bare soil and Wild Strawberry. There area a couple of buildings south of the road and an overgrown structure. There was masses of Wood Spurge growing around the overgrown structure and it was also in smaller amounts near the buildings and where the road snaked around to create more shaded areas.</p> <p>The zone did not produced any Grizzled Skipper but did have 9 Drab Loopers</p> <p>Condition: Poor</p> <p>Recommendations: When taking into account that the only clearing on site that holds Grizzled Skippers is in the adjacent zone it gives added potential to successfully recreating something similar in this zone. Add to that the presence of Drab Loopers in this zone that would also benefit from clearing work, albeit managed differently over the long term, then the benefits of doing habitat management are apparent. There is the complication that the ground conditions in this zone, with a steep slope either side of the road, will make creating clearings a challenge. It is worth this section being looked at more closely in the future to work out if make plans to create clearings is feasible.</p>
Caerwent Training Area	Zone 10	ST49029154	<p>0.20ha area of mixed habitats in the smallest zone to be described. The road that passes through the zone is cut into the bank and supports a narrow grassland verge. Both sides of the road there is lots of low level scrub. The embankment faces south and supports lots of Wild Strawberry, nectar sources and bare soil with rocky exposures.</p> <p>The zone did not produce any Grizzled Skipper sightings</p> <p>Condition: Good</p> <p>Recommendations: This small zone in isolation does would not be able to support Grizzled Skippers in isolation but if adjacent areas could be improved it might become important. Therefore no action required here</p>

Site name	Target note no.	Grid ref	Target note
Caerwent Training Area	Zone 11	ST49129146	<p>0.58ha area of mixed habitats dominated by grassland and scrub. The road passes through this zone separates it from the Dinham Meadows SSSI. There is an embankment on the northeast side of the road which faces southwest and gathers the afternoon sun. The embankment supports lots of Wild Strawberry, nectar sources and seed heads. It also has bare soil and rocky exposures. Above the embankment is an area of grassland which is becoming rank. Beyond that there is mature wood and there are also scrub patches within the zone.</p> <p>The zone did not produce any Grizzled Skipper sightings</p> <p>Condition: Fair</p> <p>Recommendations: If it is possible it would be beneficial to change the management of the grassland area to create bare patches and increase the nectar source abundance. Introducing mounds of low nutrient soils to the grassland area would work well here and create bare soil and allow plants like Birds-foot-trefoil to spread into.</p> <p>The adjacent SSSI meadow would be better resource for spring flying butterflies if the grazing stock were removed from February until July. Managing compartment within the Meadow with electric fencing might help create better habitat conditions to have the biggest impact.</p>

# 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].

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

Metadata for this project is publicly accessible through Natural Resources Wales' Data Discovery Service <https://metadata.naturalresources.wales/geonetwork/srv> (English version) and <https://metadata.cyfoethnaturiol.cymru/geonetwork/cym/> (Welsh Version). The metadata is held as record no. **NRW\_DS161483**.

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