

# WESTER TULLOCHURRAN

## 2025 SURVEYS



# BUMBLEBEES AND OTHER POLLINATORS

Authored by Rachel Bicker

Client Name	Miles Goodman - Member of Northwoods Rewilding Network, c/o Scotland: The Big Picture)
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Cover image: Devil's-bit Scabious flowering in The Meadow at Wester Tullochurran.  
August 2025

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## SUMMARY

- ❖ A baseline survey of bumblebees and other pollinators was undertaken by ecologist Rachel Bicker of the grassland areas at Wester Tullochurran during summer 2025
- ❖ The aim was to provide a snapshot of species presence, abundances and nectar plant interactions across the survey area
- ❖ The survey established a fixed transect which can be repeated on a periodic basis
- ❖ A total of 5 bumblebee species, 13 butterflies and 9 other large pollinator species were recorded
- ❖ The most abundant species were Common Carder Bumblebee, Peacock Butterfly and the Chimney Sweep moth

- ❖ The most frequently visited nectar plant was Devil's-bit Scabious, followed closely by Rosebay Willowherb
- ❖ Species with a notable conservation status were Small Pearl-bordered Fritillary, Small Heath and Dark Green Fritillary
- ❖ Recommendations include actions such as planting broadleaf trees, management of Rosebay Willowherb through hand-pulling, and introducing a pulse-grazing regime
- ❖ Future surveys might involve extending the transect route into woodland areas and increasing the number of visits

## INTRODUCTION

### SITE DETAILS

Wester Tullochcurran is located on the west bank of the River Ardle in northern Perthshire, grid reference TQ 44729 12611. The boundary includes an area approximately 31ha (77 acres) in size.

Historically the site was made up of 'ferm toun' homesteads and agricultural field boundaries which depicts the prior land use. Today it comprises of old meadow grassland, mature broadleaf woodland, conifer plantation and riparian woodland habitat. A large area of dense conifer plantation was cleared through felling during the winter of 2023 to 2024, a result of which was newly opened up areas with opportunity for broadleaf woodland, heathland and grassland habitat expansion. A few scattered mature conifer trees have been retained and plentiful deadwood resource in the form of brash and stumps have been left on site. A particularly interesting ecological feature is The Meadow, a broad strip of old unimproved grassland with scattering of broadleaved trees and a large pond. This is situated up on the slope above the river and contains a diverse range of native wild flower species. Centrally within the site is the lochan and two large ponds, which have been newly opened up to light as a result of the plantation clearance. The newly built main house is situated on a ridge, overlooking the lochan at its southern tip. A series of newly dug ponds scrapes in early 2025 resulted new open areas of water, bare soil patches and marginal plant species which are expanding to colonise the wetland edges. The fields to the south east were previously intensive sheep pasture, which for the past couple of years were relaxed and the vegetation left long.

Wester Tullochcurran is a member of Northwoods Rewilding Network (NRN), a project of SCOTLAND: The Big Picture. Members join with the intention of increasing wildlife, improving ecological connectivity and processes within the wider landscape.

### SURVEY VISITS AND AIMS

Repeatable baseline surveys are useful to provide evidence of changes in on-site wildlife populations, the impacts of land management and broader environmental changes. The information gathered helps deepen understanding and awareness for site managers, driving sensitive habitat maintenance and further ideas for enhancements.

The ecological survey at Wester Tullochcurran was commissioned by property owner Miles Goodman, for the purpose of creating a baseline dataset of bumblebees and other pollinating insects utilising the site. The focus is on comparisons between the open grassland and older meadow areas, measuring levels of pollinator activity, identifying notable species and important areas of habitat.

Two separate survey visits were made to the site by suitable experienced ecologist Rachel Bicker on June 11<sup>th</sup> and August 12<sup>th</sup> 2025. On the first visit a 4km walking route was mapped and then determined as the fixed transect. Minimum weather conditions were adhered to as per the United Kingdom Butterfly Monitoring Scheme (UKBMS) guidelines. Further details of the survey methodology can be found in [Appendix II](#).

## SURVEY LIMITATIONS

A single survey will only provide a snapshot in time, the accuracy of which has potential to be affected by short-term events such as the weather. It is therefore difficult to draw meaningful conclusions from the data collected in a single season, but baselines can be built upon with future surveys repeating the same protocols.

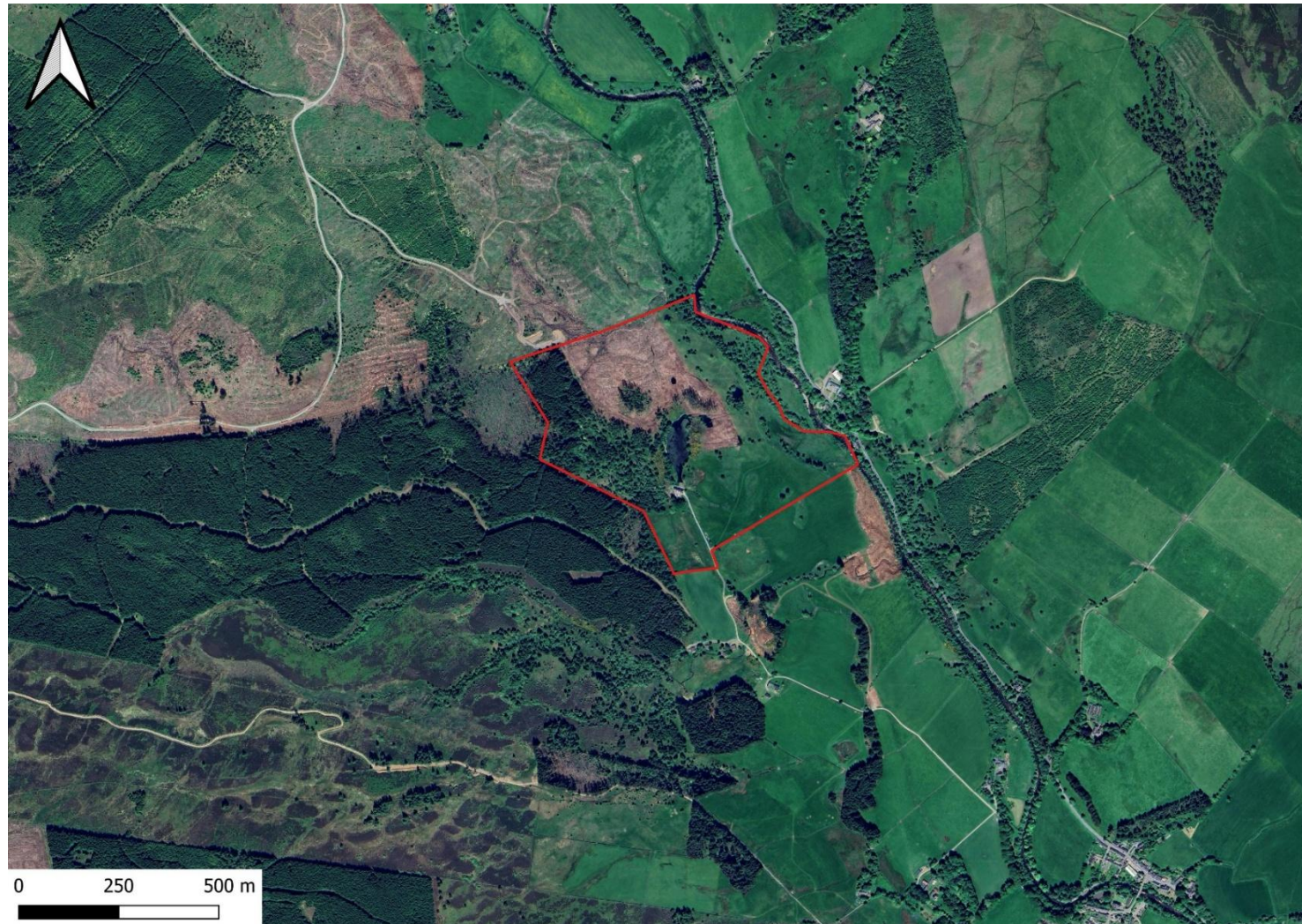
Due to time and budgetary constraints, the survey focus was on the open meadow and grassland areas which are the main interest and potential priority for restoration. Therefore the woodlands areas were not assessed and associated species potentially missed.

Due to survey timings, the peak of some earlier spring-flying species will have been missed, such as Early Bumblebee queens, and butterflies species such as Pearl-bordered Fritillary.

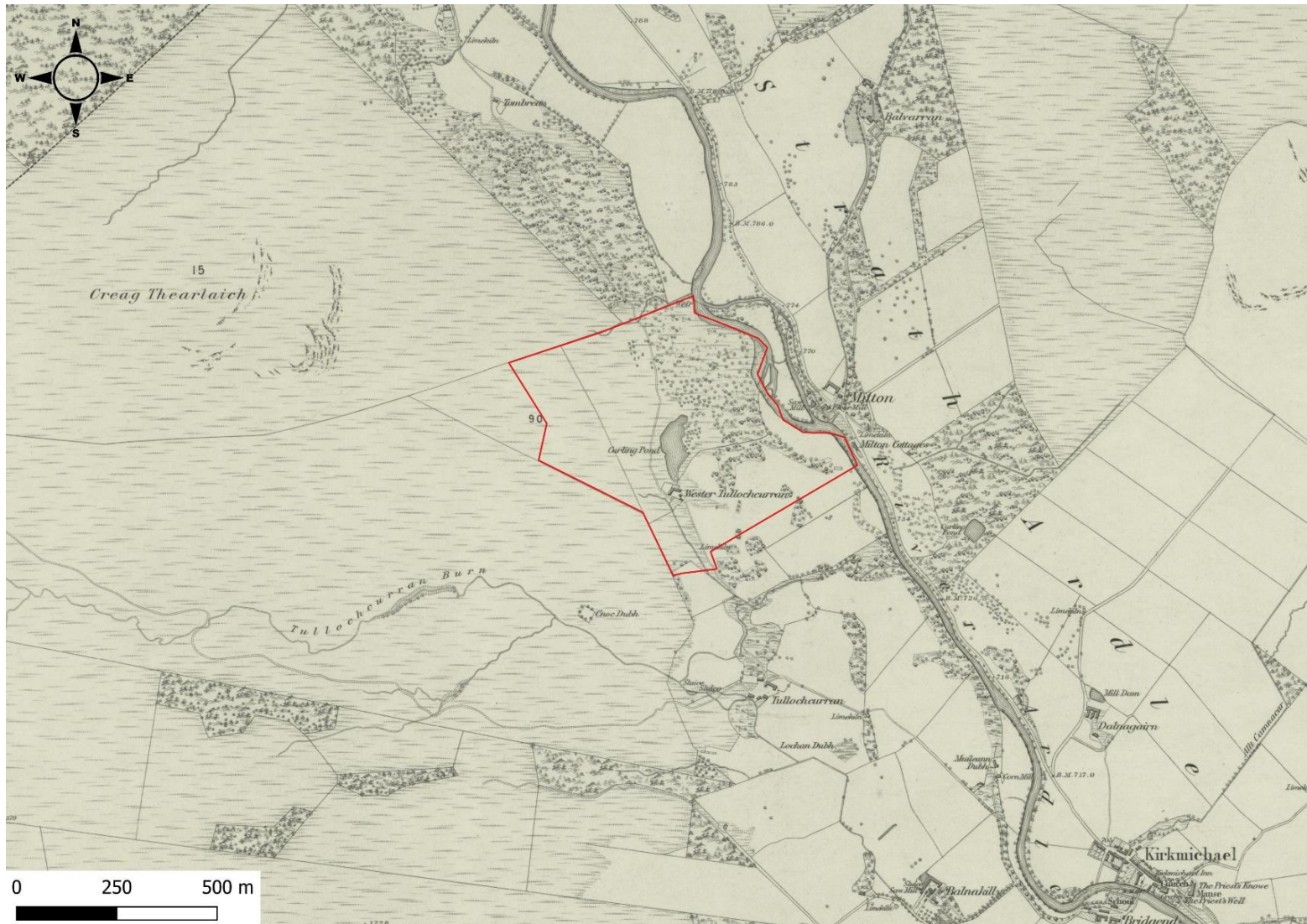


**Photo 1.** View from house looking northward over the lochan

## MAPS



**Map 1.** Wester Tullochurran site boundary and the wider landscape. Map contains: © Google Maps (2025)



**Map 2.** Historical map of Wester Tullochurran and surrounding area circa 1867. Reproduced with the permission of the National Library of Scotland.



**Map 3.** Named compartments and transect route walked during the two survey visits in June and August 2025. Map contains: © Google Maps (2025)

## RESULTS

### NECTAR PLANTS

**Table 1.** Observed nectar plant visitations by pollinating insects on the Wester Tullochurran transect across two days in June and August 2025.

Common Name	Taxon Name	No. of interactions
Alpine Bistort	<i>Persicaria vivipara</i>	1
Bitter Vetch	<i>Lathyrus linifolius</i>	1
Broom	<i>Cytisus scoparius</i>	4
Common Bird's-foot Trefoil	<i>Lotus corniculatus</i>	4
Common Ragwort	<i>Jacobaea vulgaris</i>	1
Common Rock-rose	<i>Helianthemum nummularium</i>	1
Corn Mint	<i>Mentha arvensis</i>	5
Creeping Buttercup	<i>Ranunculus repens</i>	2
Creeping Thistle	<i>Cirsium arvense</i>	3
Cuckoo Flower	<i>Cardamine pratensis</i>	1
Devil's-bit Scabious	<i>Succisa pratensis</i>	121
Epilobium sp.	<i>Epilobium sp.</i>	2
Goldenrod	<i>Solidago virgaurea</i>	1
Harebell	<i>Campanula rotundifolia</i>	2
Ling	<i>Calluna vulgaris</i>	7
Marsh Thistle	<i>Cirsium palustre</i>	6
Pignut	<i>Conopodium majus</i>	11
Rhododendron	<i>Rhododendron ponticum</i>	3
Rosebay Willowherb	<i>Chamaenerion angustifolium</i>	103
Sneezewort	<i>Achillea ptarmica</i>	1
Spear Thistle	<i>Cirsium vulgare</i>	1
Tormentil	<i>Potentilla erecta</i>	2
White Clover	<i>Trifolium repens</i>	5
Yarrow	<i>Achillea millefolium</i>	8

The most frequently visited flowers by far were **Devil's-bit Scabious** (121 interactions) followed by **Rosebay Willowherb** (103 interactions).

Along with Devil's-bit Scabious, several positive grassland and heathland indicator species were observed, largely within The Meadow. These included **Pignut**, **Sneezewort**, **Tormentil**, **Heath Speedwell** and **Bitter-vetch**. An area of **Ling** and some limited patches of **Common Rock-rose** were pointed out by the owner on the southern edge of the birch woodland. A single **Welsh Poppy** was found close to the house, which is thought to have been introduced accidentally by seed. Several **Northern Marsh-orchid** were observed on the grassy river floodplain. **Corn Mint** is on the Scottish Biodiversity List, and this species along with **Chickweed-wintergreen** was located in various damper areas on site such as the banks of the lochan.



**Photo 2.** Corn Mint *Mentha arvensis*



**Photo 3.** Devil's-bit Scabious *Succisa pratensis* with nectaring Peacock butterfly and carder bumblebee

## BUMBLEBEES AND OTHER BEE COUNTS

**Table 2.** Total counts of bumblebees and other bees on the Wester Tullochurran transect.

Common Name	Taxon Name	11/06/2025	12/08/2025	Total
Honeybee	<i>Apis mellifera</i>	3	44	47
Orange-tailed Mining Bee	<i>Andrena haemorrhoa</i>	1	0	1
Buff-tailed Bumblebee	<i>Bombus terrestris</i>	0	1	1
Carder bumblebee sp.	<i>Bombus</i> sp.	6	23	29
Common Carder Bee	<i>Bombus pascuorum</i>	5	58	63
Cuckoo bumblebee sp.	<i>Bombus</i> sp.	0	10	10
Garden Bumblebee	<i>Bombus hortorum</i>	0	5	5
Gypsy Cuckoo Bumblebee	<i>Bombus bohemicus</i>	0	8	8
White/Buff-tailed Bumblebee	<i>Bombus</i> sp.	23	43	66
White-tailed Bumblebee agg.	<i>Bombus lucorum</i> agg.	0	7	7

Five species of bumblebee were identified, and those which could not be determined in the field were grouped. The most abundant group was **White-tailed / Buff-tailed bumblebees**, with a total of 66 recorded across two days. Both species are common, but the workers cannot be reliably separated by their appearance in the field. There are also three almost identical white-tailed species: **White-tailed Bumblebee** *Bombus lucorum*, **Northern White-tailed Bumblebee** *Bombus magnus*, and **Cryptic Bumblebee** *Bombus cryptarum*. These cannot be easily differentiated visually and can often only be determined DNA analysis, so they are treated as an aggregate. The highest count of an individual species was **Common Carder Bumblebee**, with a total of 63. **Honeybee** was also abundant with a total count of 47, and these are depicted separately in Figure 3.

The greatest concentration of bee activity was in The Meadow; an unimproved grassland area in the north-eastern part of the site. There was also high activity in the central areas of the site where the plantation was recently cleared, on abundant flowering Rosebay Willowherb. This and Devil's-bit Scabious were the most frequented nectar plants by bumblebees. Only very few individuals were recorded in the recent sheep-grazed fields in the south-east.



Photo 4. White-Bumblebee *Bombus lucorum* agg. Male nectaring on Ling



Photo 5. Gypsy Cuckoobee *Bombus bohemicus* on Marsh Thistle

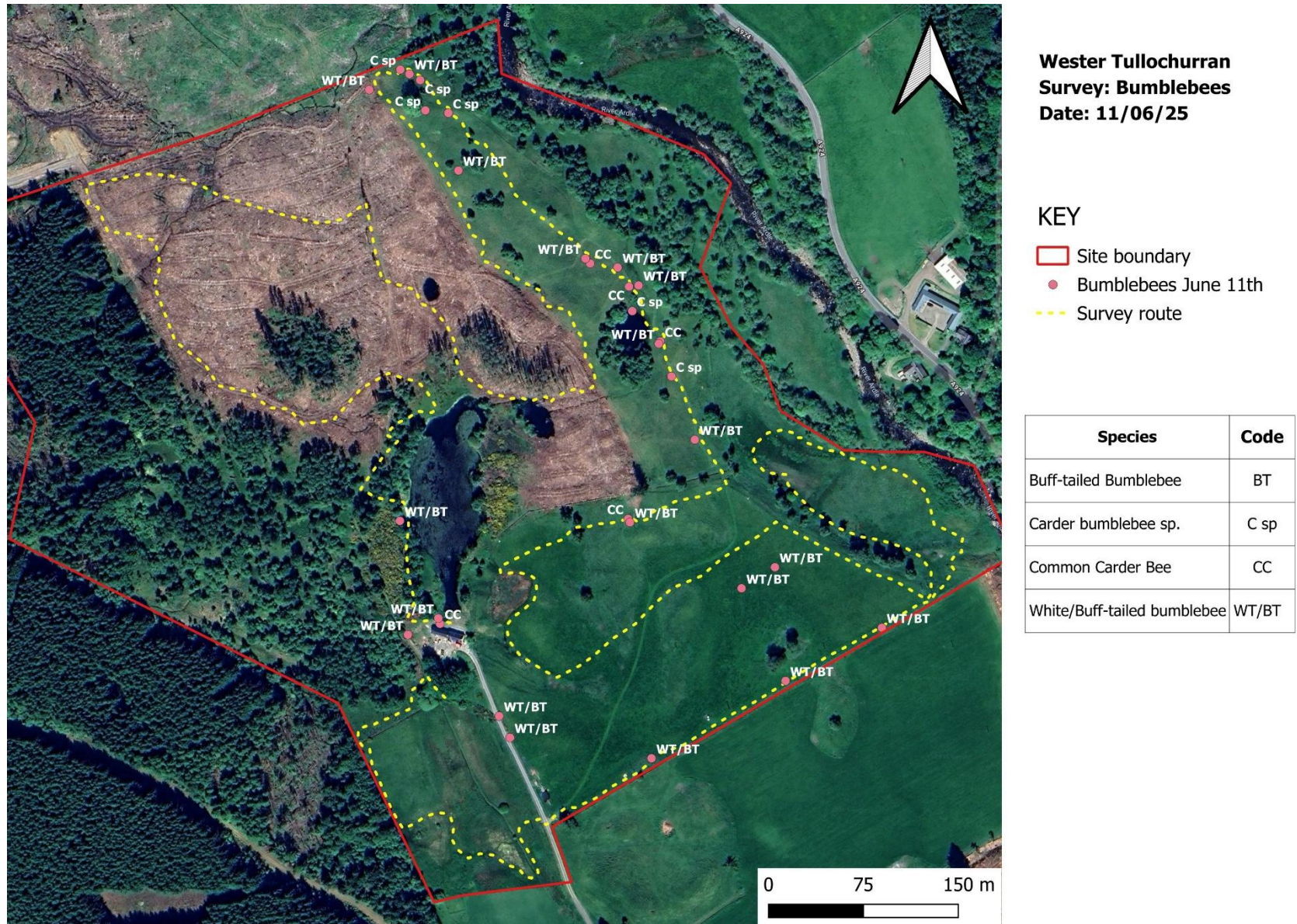
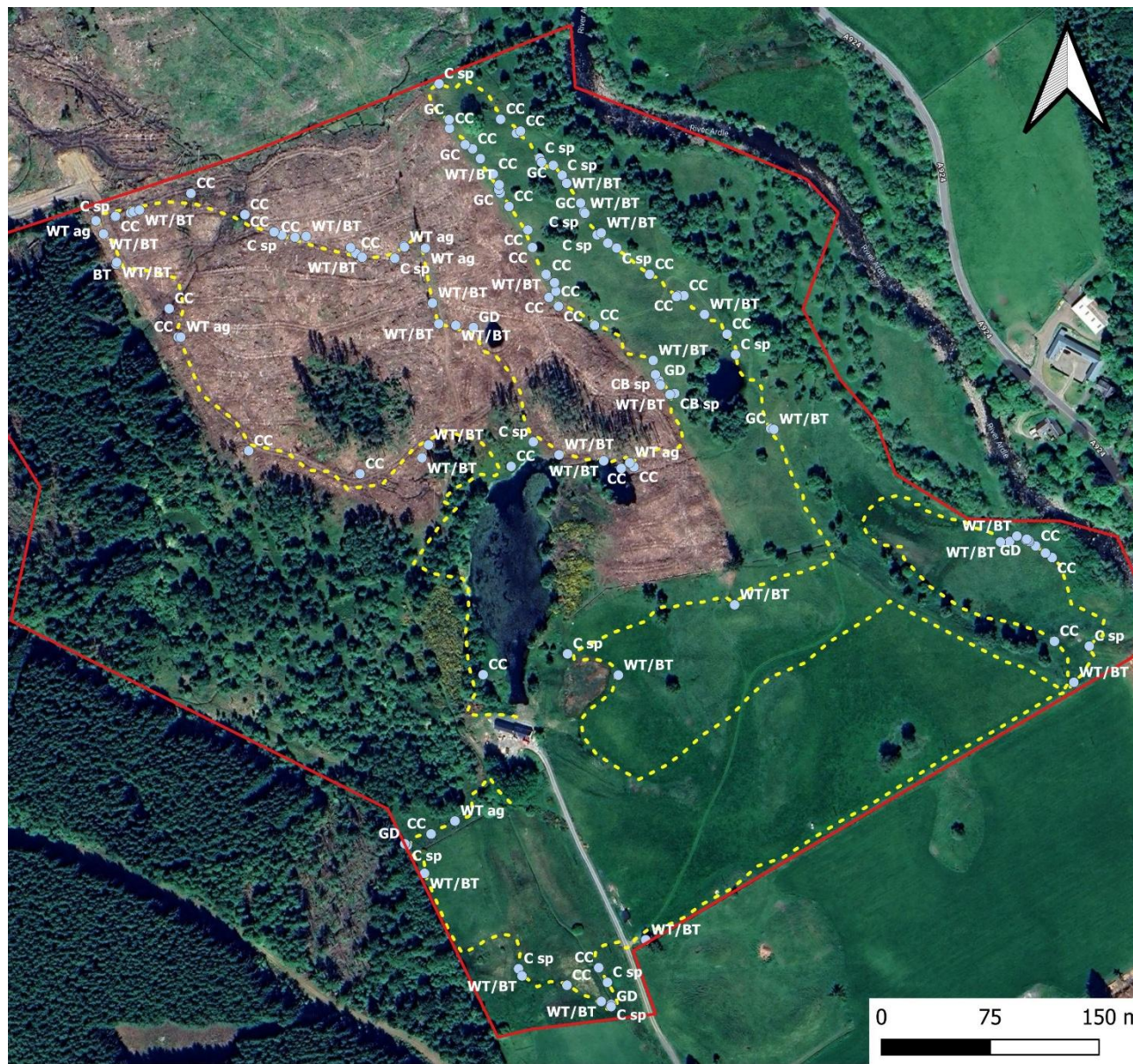


Figure 1. Bumblebee species records along the transect 11/06/25



**Wester Tullochurran  
Survey: Bumblebees  
Date: 12/08/25**

**KEY**

- Site boundary
- Bumblebees August 12th
- Survey route

Species	Code
Buff-tailed Bumblebee	BT
White/Buff-tailed Bumblebee	WT/BT
Carder bumblebee sp.	C sp
Common Carder Bee	CC
Cuckoo bumblebee sp.	CB sp
Gypsy Cuckoobee	GC
Garden Bumblebee	GD
White-tailed Bumblebee agg.	WT ag

Figure 2. Bumblebee species records along the transect 12/08/25

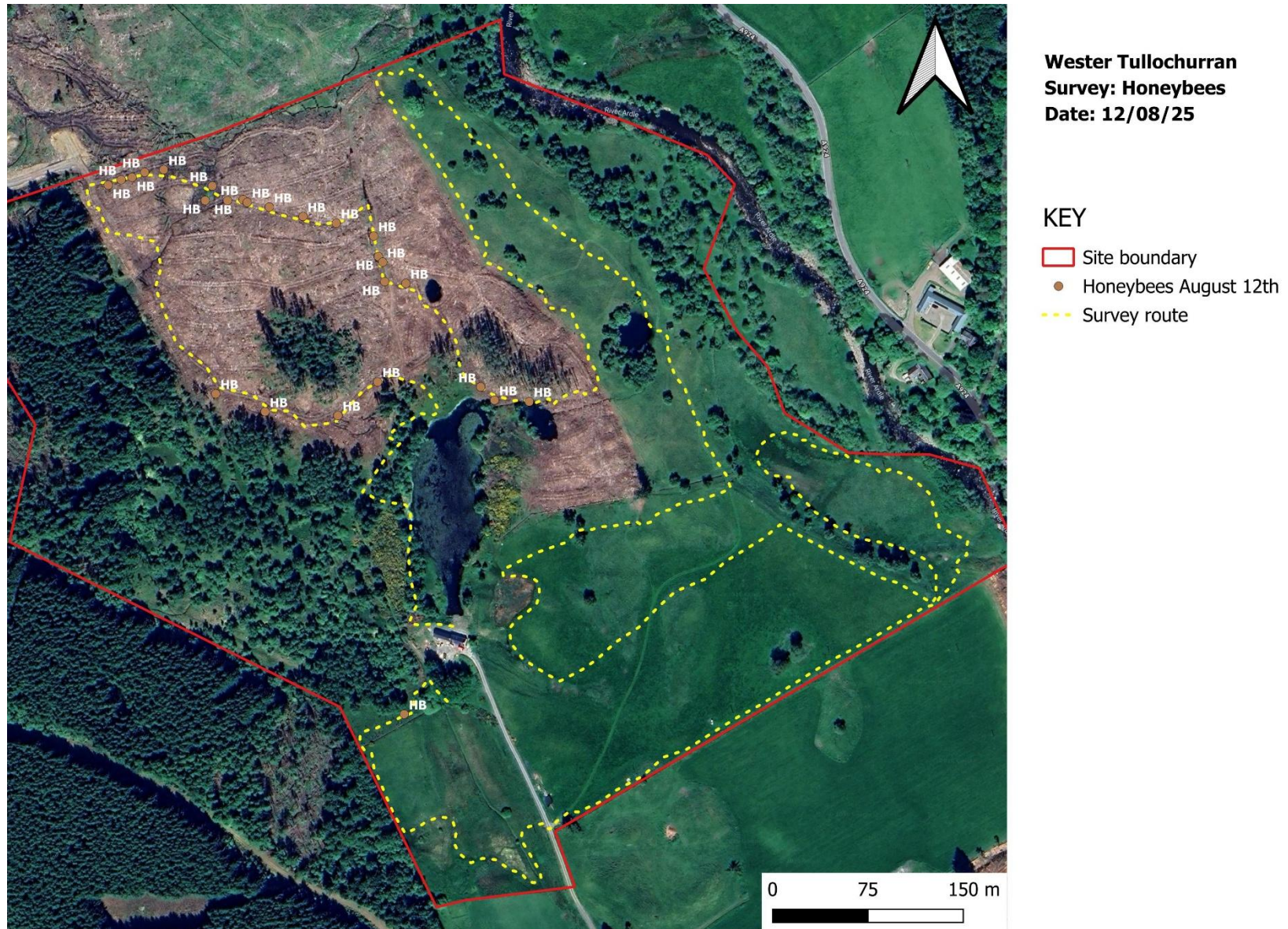


Figure 3. Honeybee records along the transect 12/08/25

## BUTTERFLY COUNTS

Table 3. Total counts of butterfly species on the Wester Tullochurran transect

Common Name	Taxon Name	11/06/2025	12/08/2025	Total
Common Blue Butterfly	<i>Polyommatus icarus</i>	1	0	1
Dark-green Fritillary	<i>Speyeria aglaja</i>	0	6	6
Green-veined White	<i>Pieris napi</i>	3	9	12
Large White	<i>Pieris brassicae</i>	0	3	3
Meadow Brown	<i>Maniola jurtina</i>	0	1	1
Orange Tip	<i>Anthocharis cardamines</i>	3	0	3
Peacock	<i>Aglais io</i>	1	28	29
Red Admiral	<i>Vanessa atalanta</i>	0	1	1
Small Copper	<i>Lycaena phlaeas</i>	2	0	0
Small Heath	<i>Coenonympha pamphilus</i>	13	0	13
Small Pearl-bordered Fritillary	<i>Boloria selene</i>	7	0	7
Small Tortoiseshell	<i>Aglais urticae</i>	0	1	1
Small White	<i>Pieris rapae</i>	0	3	3

A total of 13 butterfly species were recorded at Wester Tullochurran. **Peacock** was the most abundant species with a total of 29 recorded, mostly picked up during the August visit and very frequently encountered on Devil's-bit Scabious. **Small Pearl-bordered Fritillary** was great species to see as this is on the Scottish Biodiversity List and classed on the GB Red List (2022) as Vulnerable. Seven individuals were counted during August, although none were seen nectaring on wildflowers. A total of 13 **Small Heath** were recorded which is another butterfly on the Scottish Biodiversity List and the GB Red List (2022) as Vulnerable, although it is generally more widespread. **Dark Green Fritillary** is also the GB Red List (2022) as Vulnerable and a total of six were recorded..

The greatest concentration of butterfly activity was also within the unimproved meadow area, as well as around the main house and the newly dug wetland scrapes to the north.



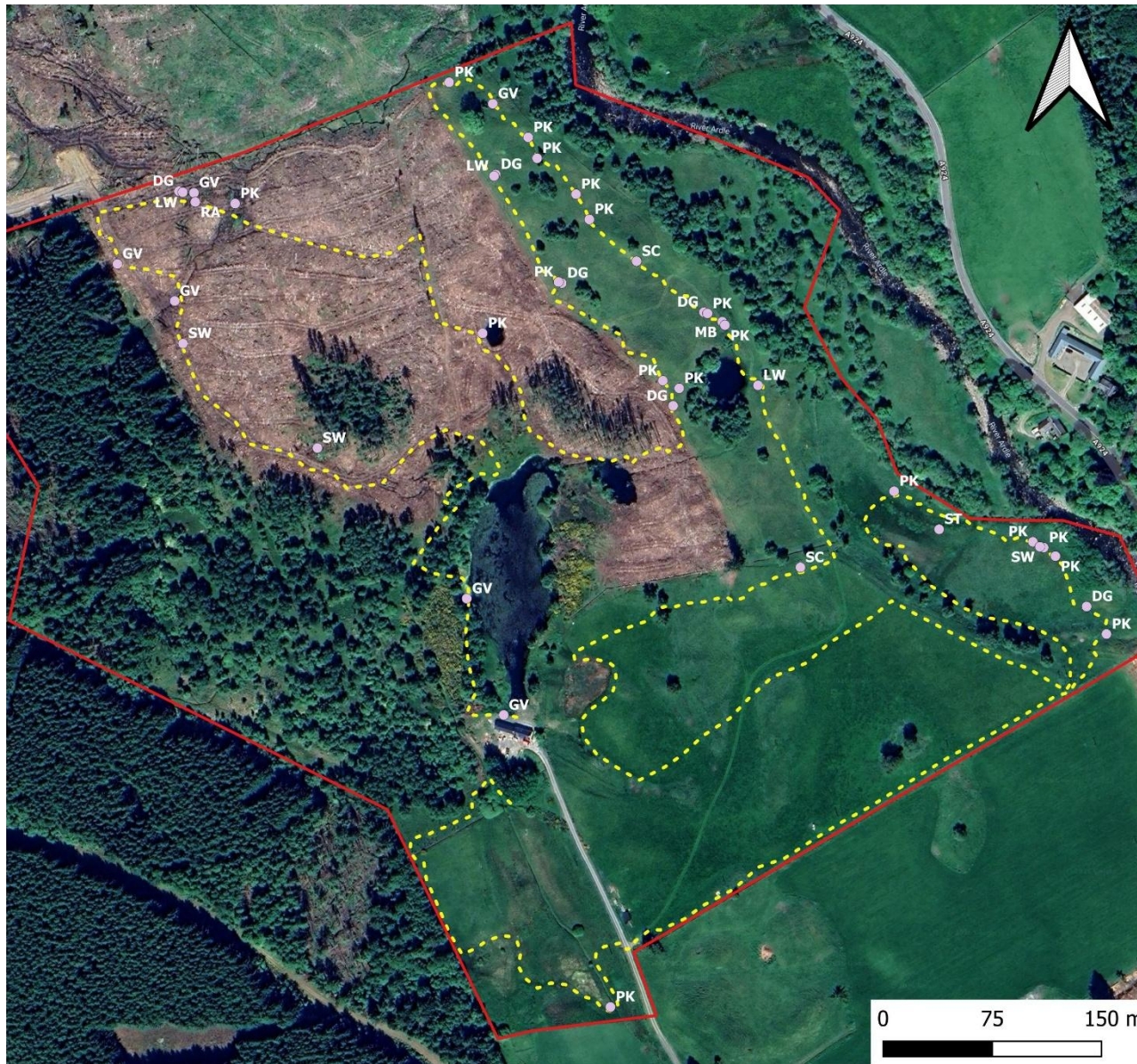
Photo 6. Small Pearl-bordered Fritillary *Boloria selene* basking on deadwood



Photo 7. Small Heath butterfly in a sweep net along with capsid bug



Figure 4. Butterfly species records along the transect 11/06/25



**Wester Tullochurran  
Survey: Butterflies  
Date: 12/08/25**

**KEY**

- Site boundary
- Butterflies August 12th
- Survey route

Species	Code
Dark-green Fritillary	DG
Green-veined White	GV
Large White	LW
Meadow Brown	MB
Peacock Butterfly	PK
Red Admiral	RA
Small Copper	SC
Small Tortoiseshell	ST
Small White	SW

Figure 5. Butterfly species records along the transect 12/08/25

## OTHER POLLINATORS COUNTS

**Table 4.** Total counts of other large pollinator species on the Wester Tullochurran transect.

Taxon group	Common Name	Taxon Name	11/06/2025	12/08/2025	Total
Hoverfly	Eristalis hoverfly	<i>Eristalis</i> sp.	0	21	<b>21</b>
Hoverfly	White-barred Peat Fly	<i>Sericomyia lappona</i>	1	0	<b>1</b>
Hoverfly	Yellow-barred Peat Fly	<i>Sericomyia silentis</i>	0	3	<b>3</b>
Hoverfly	Syrphid hoverfly	Syrphidae	0	5	<b>5</b>
Hoverfly	Bumblebee Plumehorn	<i>Volucella bombylans</i>	0	0	<b>3</b>
Hoverfly	Xylota hoverfly	<i>Xylota</i> sp.	1	0	<b>1</b>
Moth	Chimney Sweep	<i>Odezia atrata</i>	60	0	<b>60</b>
Soldier fly	Broad Centurion	<i>Chloromyia formosa</i>	1	0	<b>1</b>
Wasp	Social Wasp	<i>Vespula</i> sp.	0	10	<b>10</b>

A total of nine other large-sized pollinator types (identified either as groups or to species and above 10mm in size) were recorded across the two visits. The **Chimney Sweep** moth was the most abundant species and although not observed actively nectaring on plants, it's larval foodplant is Pignut which was highly abundant on site and seen flowering in June.

Individuals of the **Eristalini hoverfly** group were widely observed on a broad variety of plants, but seen in greatest abundances on Devil's-bit Scabious and Yarrow. A number of social wasps of the genus **Vespula** were largely observed nectaring on Rosebay Willowherb.

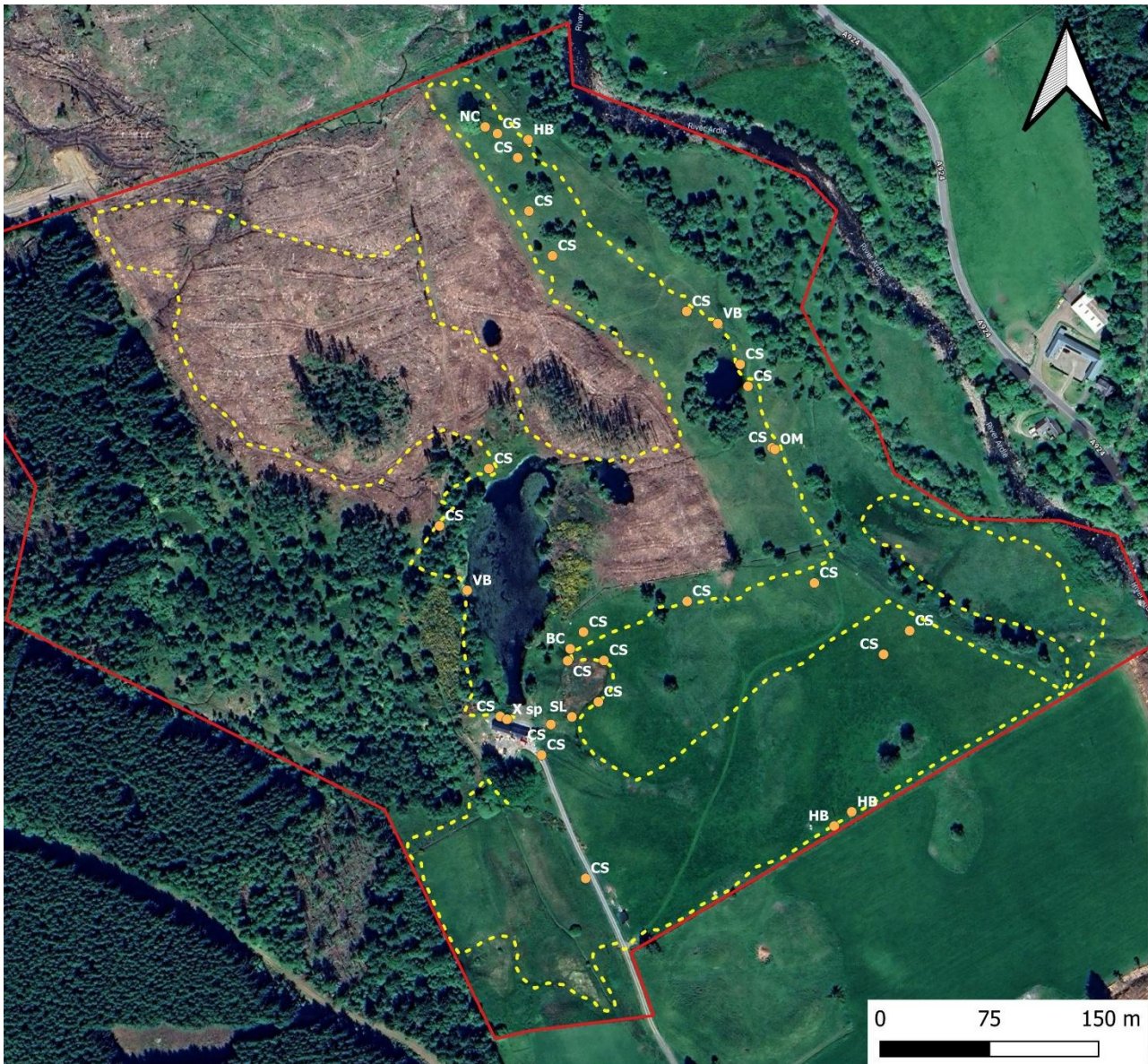
The greatest concentration of pollinator activity was again in the old meadow area, but also in the wetter habitats adjacent to the lochan and around the main house where has been some soil disturbance.



Photo 8. Yellow-barred Peat Fly *Sericomyia silentis* on Devil's-bit Scabious flower.



Photo 9. Bumblebee Plumehorn *Volucella bombylans*



**Wester Tullochurran**  
**Survey: Other pollinators**  
**Date: 11/06/25**

**KEY**

- Site boundary
- Other pollinators June 11th
- Survey route

Species	Code
Broad Centurion	BC
Chimney Sweep	CS
Honeybee	HB
Neoitamus cyanurus	NC
Orange-tailed Mining Bee	OM
Sericomyia lappona	SL
Volucella bombylans	VB
Xylota species	X sp

Figure 6. Other pollinator species records along the transect 11/06/25

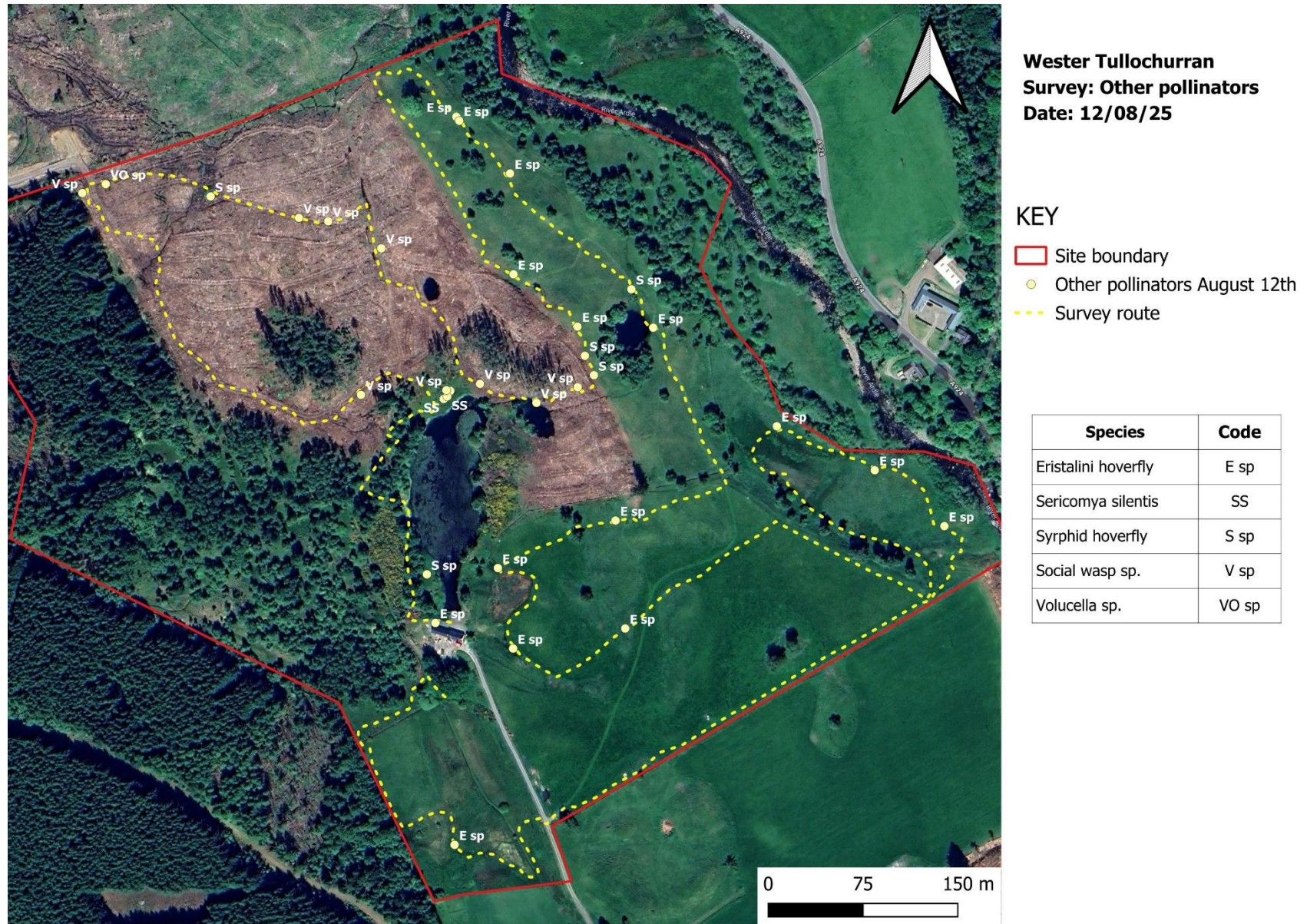


Figure 7. Other pollinator species records along the transect 12/08/25

### MAIN FINDINGS

The Meadow area contains a good diversity of wild flowers and therefore a broad selection of nectar plants to suit various pollinating insects. By contrast the previously sheep-grazed Loch Park fields were very species poor, with only Creeping Buttercup and White Clover flowering in high abundances, with only the occasional flower of Harebell and patches of Pignut recorded. Periods of pulse grazing using cattle and ponies, and then relaxing the sward could help other wild flower species to colonise and spread into these areas. However, due to the lasting impacts on soil condition and sward from the historic sheep grazing, it is likely this will only happen over a very slow timeline. Options might be to plant patches of thorny scrub, creating a structurally enhanced habitat of scrubland and grassland mosaic, boosting the nectar availability in the spring and providing cover and forage opportunities for birds.

An extensive area of the clear-felled parts of the site (circa 6.5 ha) has been colonised by abundant levels of Rosebay Willowherb, a vigorous pioneer species of disturbed ground. The large and prolific flowers are certainly benefitting bumblebees, butterflies, moths and other pollinators, which previously had limited foraging opportunities within the old conifer plantation. However, it is conceded by the author that this a highly vigorous plant which outcompetes other regenerating native vegetation. Reducing dominance through targeted hand-pulling of patches, removing it by the roots prior to setting seed can be an effective method of control. Reportedly the seed viability is also low, degrading after just 18 months. An alternative solution may be to plant up some of the denser patches with fast-growing woody species which may eventually outcompete it. Allowing cattle and ponies into these area may help to knock over and trample some patches, and rootling pigs could have a beneficial effect in continuing the cycles of soil disturbance.

Social insects such as bumblebees tend to be more numerous later in summer, as the numbers of workers build up within the colonies and the male castes are produced. This is apparent from the data for the carder bumblebee and cuckoo bumblebee species (although some notably early species such as Early Bumblebee would have peaked around May). Honeybee populations also tend to peak later in the summer; however, as a species that is commonly managed and artificially supported through apiculture, they are not a reliable indicator of biodiversity. They are also a potential problem in very high abundances, as they can outcompete wild native pollinator species in their proficiency at nectar and pollen collection.

Northern Brown Argus is a butterfly species previously known from the site. The larval food plant is primarily Common Rock-rose, of which a patch was pointed out by the landowner toward the end of the transect, adjacent to the birch woodland. Despite visits being made during the peak flight season, Northern Brown Argus was not observed by the surveyor, which may indicate this is only a small population, or that a key area for this species was missed from

the transect. The birch woodland areas were not included within the scope of the survey, but may be host to other pollinator species such as Speckled Wood butterfly, Heath Bumblebee and Bilberry Bumblebee.

As only two visits were made to the site through the season, the peak flowering and flight periods for particular species will have been missed. Spring surveys for example might pick up Pearl Bordered Fritillary butterfly and the queens of bumblebees which can be more easily identified to species. An ideal scenario would be to conduct surveys monthly from March through to September, as per the Bumblebee Conservation Trust 'BeeWalk' survey scheme.

## SUMMARY OF RECOMMENDATIONS

- ❖ Managing patches of dense Rosebay Willowherb through hand-pulling, or planting of diverse native broadleaved trees. Faster growing species include willows, Wild Cherry, Alder and Silver Birch.
- ❖ Planting up Loch Park grassland with patches of scrub. Species could include Juniper, Blackthorn, Hawthorn, Dog Rose and Common Rock-rose.
- ❖ Introducing periods of pulse-grazing within grasslands and recently clear-felled areas using cattle or ponies to help control dominant vegetation, create structural diversity within the sward and encourage wild flower diversity.
- ❖ Considerations for future surveys:
  - An additional spring visit, or monthly visits to provide more accurate datasets
  - An additional transect route or modified sections to include the birch woodland habitat
  - Repeat the baseline survey at a frequency of every two or three years to record changes in populations and activity levels on site.



**Photo 10.** Newly dug scrapes have further varied the habitat and will continue to colonise with marginal and wetland wild flower species – August 2025



**Photo 11.** Highly abundant areas of Rosebay Willowherb within clear-fell areas – August 2025



**Photo 12.** The Meadow areas with prolific Pignut flowers – June 2025



**Photo 13.** Devil's-bit Scabious flowers in The Meadow - August 2025



**Photo 14.** Alpine Bistort in The Meadow – June 2025



**Photo 15.** Lochan Park grassland with Pignut and abundant Creeping Buttercup – June 2025



**Photo 16.** Transitioning habitat where the clear-felled area meets The Meadow



**Photo 17.** Ling in flower adjacent to the birch woodland - August 2025

### POLLINATOR SURVEYS

The survey methodology used was largely based on the United Kingdom Butterfly Monitoring Scheme (UKBMS) protocols. Prior to establishing a transect, a general walkover of the site was made to establish the best route or routes, with the aim of covering key habitat types or several different areas of the same habitat for comparison purposes.

Once the transect had been established, the surveyor undertook a steady-paced walk along the transect, recording butterflies, bumblebees and other large pollinating insects within an imagined 5 meter box (2.5 meters either side of the transect line, 5 meters ahead and 5 meters above). If the insect is seen to be interacting with a nectar plant through pollen or nectar gathering, or simply resting, the plant species was also noted.

Survey conditions and protocols adhered to:

- Counts were carried out between 10:00 and 17:00 BST. On hotter days (above 22°C), earlier start times and later finishes are deemed acceptable
- The minimum allowed temperature for surveys was 13°C in calm weather, with at least 60% sunshine
- If temperatures reached 17°C or higher then cloudy conditions were acceptable
- No counts were made when the temperature exceeded 30°C
- Wind conditions stronger than force 5 on the Beaufort scale (i.e., 19-24 mph, when small trees in leaf begin to sway) were avoided
- No counts were made during rainy conditions.

If any records are made when the minimum conditions are not present, then a note would be attached to the data gathered.

Species identification was mostly carried out at a distance using binoculars, observing individuals in flight or while landed up on flowers. A butterfly net would be used to temporarily capture individuals for closer checks of similar species, in particular certain bumblebees, white butterflies and the skipper butterflies.

Each individual or group of individuals of the same species were recorded, noting the total count, the location on the transect, and the associated wildflower species (if relevant).

### DATA COLLECTION AND PROCESSING

Data were collected in the field using a combination of the Avenza Maps and the iRecord phone applications. Avenza Maps is a mapping and navigation tool which was useful for creating quick

bespoke survey forms. Details gathered for each observation included the species name, count, associated plant species and precise GPS location. Survey metadata were also collected (tracked route, date, time and local weather conditions). The data can be stored offline within the device until the user is connected to the internet.

iRecord is a free and easy to use online biological recording tool, useful for collecting detailed species data (life stage counts and breeding activity) as well as attaching photos. Incidental records collected outside of the timed surveys were added to iRecord, but not included within the transect survey analysis to avoid skewing the results.

Species information submitted to the iRecord platform is checked by experts (called verifiers), to ensure that it is correct and highly accurate. Verified records are made available Local Environmental Records Centres (LERCs), to be added to their database. This ensures species distribution data are as up to date as possible, and the information is available to relevant individuals and organisations.

APPENDIX III: SCOTLAND BUMBLEBEE SPECIES LIST

Table 5. Scotland breeding bumblebee species list 2025. Distribution statuses shared by Macdonald, M.A. (2025) The Scottish Aculeate List v 3.10, 13 August 2025.

<https://www.hbrg.org.uk/SAL/>.

Common name	Taxon name	Distribution and status
Barbut's Cuckoo Bumblebee	<i>Bombus barbutellus</i>	Very scarce generally, but found at several sites in Orkney, 2010 (Bob Dawson, John Crossley), and near Inverness in 2022 (iRecord).
Bilberry Bumblebee	<i>Bombus monticola</i>	Absent from all islands, except Mull (2012), Islay (2004), Skye (2019).
Broken-belted Bumblebee	<i>Bombus soroensis</i>	
Buff-tailed Bumblebee	<i>Bombus terrestris</i>	Arrived Shetland ca 2011 (Macdonald & Harvey, 2014). Orkney, ca 2015. W Isles record in Proc. Roy. Soc. Ed. 79B (4) 1981: 215-321, then found S Uist 2021.
Common Carder Bee	<i>Bombus pascuorum</i>	Recent colonist from ca 2013 to W Isles where it is now widespread.
Cryptic Bumblebee	<i>Bombus cryptarum</i>	
Early Bumblebee	<i>Bombus pratorum</i>	Arrived in Shetland 2018, almost certainly with human assistance and is now established in S Mainland and Bressay (P. Harvey pers. comm.). Found W Isles 2023.
Field Cuckoo Bumblebee	<i>Bombus campestris</i>	Very scarce.
Forest Cuckoo Bee	<i>Bombus sylvestris</i>	
Garden Bumblebee	<i>Bombus hortorum</i>	
Great Yellow Bumblebee	<i>Bombus distinguendus</i>	One record from Shetland in 1926. Current breeding distribution W Isles, Orkney, Caithness, Sutherland, Coll, Tiree
Gypsy Cuckoo Bee	<i>Bombus bohemicus</i>	
Heath Bumblebee	<i>Bombus jonellus</i>	Red-tailed races vogtii and hebridensis on Shetland and W Isles, with some red-tailed males on Orkney.
Moss Carder-bee	<i>Bombus muscorum</i>	Subspecies agricolae, once known as B.m. smithianus, on Shetland, W Isles, Coll, Tiree. Southern records mostly old.
Northern White-tail	<i>Bombus magnus</i>	
Red-shanked Carder-bee	<i>Bombus ruderarius</i>	Confined to Coll, Tiree, and possibly other Argyll islands.
Red-tailed Bumblebee	<i>Bombus lapidarius</i>	Orkney records from 1938, Hoy, specimens in NMS. W Isles record in Proc. Roy. Soc. Ed. 79B (4) 1981: 215-321. Recent northward expansion of range. Relict population on Coll and Tiree.

Red-tailed Cuckoo Bee	<i>Bombus rupestris</i>	Recorded 2023, Innerleithen, and 2024 from Jura to Fife. All other claimed Scottish records are misidentified or unconfirmed.
Tree Bumblebee	<i>Bombus hypnorum</i>	Found in Orkney 2024, possibly assisted passage. A 2024 record from Lewis is to be confirmed.
Vestal (Southern) Cuckoo Bee	<i>Bombus vestalis</i>	Found St Abbs by Bob Dawson, 2009. Now established in SE Scotland to Fife and Perthshire. A number of records in other areas are misidentified <i>B. bohemicus</i> .
White-tailed Bumblebee	<i>Bombus lucorum</i>	Many published records will refer to the aggregate ( <i>lucorum</i> s.s., <i>cryptarum</i> , <i>magnus</i> ). VC data refers to confirmed s.s. only.

## APPENDIX III: SCOTLAND BUTTERFLY SPECIES LIST

Table 6. Scotland breeding butterfly species list. Butterfly Conservation Scotland 2021

<https://butterfly-conservation.org/sites/default/files/2021-08/Butterflies%20of%20Scotland%20poster%20for%20print.pdf>

Common Name	Scientific Name	UK Status (with Scotland context)
Chequered Skipper	<i>Carterocephalus palaemon</i>	Highly localised / Scottish Priority Species
Comma	<i>Polygonia c-album</i>	Common
Common Blue	<i>Polyommatus icarus</i>	Common
Dark Green Fritillary	<i>Argynnis aglaja</i>	GB Red List (2022): Near Threatened
Dingy Skipper	<i>Erynnis tages</i>	Localised / Scottish Priority Species
Essex Skipper	<i>Thymelicus lineola</i>	Highly localised
Grayling	<i>Oeneis jutta</i>	Highly localised / Near Threatened / Scottish Priority Species
Green Hairstreak	<i>Callophrys rubi</i>	Common
Green-veined White	<i>Pieris napi</i>	Common
Holly Blue	<i>Celastrina argiolus</i>	Common
Large Heath	<i>Coenonympha tullia</i>	GB Red List (2022): Endangered / Localised / Scottish Priority Species
Large Skipper	<i>Ochlodes sylvanus</i>	Localised / Expanding
Large White	<i>Pieris brassicae</i>	Common
Marsh Fritillary	<i>Euphydryas aurinia</i>	Endangered / UK Red List Priority
Meadow Brown	<i>Maniola jurtina</i>	Common
Mountain Ringlet	<i>Erebia epiphron</i>	Highly localised / GB Red List (2022): Near Threatened
Northern Brown Argus	<i>Aricia artaxerxes</i>	Localised / Scottish Priority Species / GB Red List (2022): Vulnerable
Orange-tip	<i>Anthocharis cardamines</i>	Common
Painted Lady	<i>Vanessa cardu</i>	Common
Peacock	<i>Aglais io</i>	Common
Pearl-bordered Fritillary	<i>Boloria euphrosyne</i>	Localised / Scottish Priority Species / GB Red List (2022): Vulnerable
Purple Hairstreak	<i>Favonius quercus</i>	Localised / Common
Red Admiral	<i>Vanessa atalanta</i>	Common
Ringlet	<i>Aphantopus hyperantus</i>	Common
Scotch Argus	<i>Erebia aethiops</i>	Localised / GB Red List (2022): Vulnerable

Small Blue	<i>Cupido minimus</i>	GB Red List (2022): Near Threatened
Small Copper	<i>Lycaena phlaeas</i>	Common
Small Heath	<i>Coenonympha pamphilus</i>	GB Red List (2022): Vulnerable
Small Pearl-bordered Fritillary	<i>Boloria selene</i>	GB Red List (2022): Vulnerable
Small Skipper	<i>Thymelicus sylvestris</i>	Localised / Expanding
Small Tortoiseshell	<i>Aglais urticae</i>	Recently declining
Small White	<i>Pieris rapae</i>	Common
Speckled Wood	<i>Pararge aegeria</i>	Common
Wall	<i>Lasiommata megera</i>	GB Red List (2022): Endangered (some Scotland populations expanding)
White-letter Hairstreak	<i>Strymonidia w-album</i>	Localised / GB Red List (2022): Vulnerable