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Wildlife in lock-down

An assessment of the wildlife response to lockdown
in north-west Wales during Covid19 (Spring 2020)

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Wildlife in lock-down

Introduction

In spring 2020, a number of popular sites across north Wales were closed to the public following the implementation of a nation-wide lockdown in response to the health crisis of the Coronavirus. Many areas were entirely closed off to the general public, whilst other areas experienced massively reduced visitation due to the nature of lockdown regulations and its limits to travel. This reduction in human traffic within these areas provided a unique opportunity to evaluate how the wildlife, landscape and vegetation responds to such conditions. In a national context, this so-called period of 'anthropause' led to reduced air and noise pollution in urban areas which enabled the sound of birdsong to permeate areas usually filled with the sound of traffic; reports hit the headlines of goats descending from the Great Orme into the town of Llandudno and Harbour Porpoise swimming up the river Severn.

How wildlife was responding to this period in Wales's National Park areas and across Snowdonia was largely constrained to anecdotal records from the few able to be in these areas, including local farmers and land managers. Therefore before the lifting of lockdown measures in early July, Natural Resources Wales, the National Trust and the Snowdonia National Park Authority came together and decided to contract a surveyor to undertake surveys in a number of their (usually) most popular areas to assess what exactly was going on and how nature had responded to these unprecedented events. These surveys would serve as a baseline so that future repetition would allow comparisons to be made. This report documents the results of these surveys and reflects on the most prominent findings in light of the unique and most exceptional circumstances which prevailed in spring 2020.



Wildlife in lock-down

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Wildlife in lock-down

Methods

A total of seven different sites across Snowdonia and north Wales were chosen for these surveys. Four of these sites were the upland, mountainous areas of Yr Wyddfa, the Ogwen Valley, the Carneddau and Cader Idris; whilst three sites were the more wooded, lowland sites of Coed-y-Brenin, Coed Llenyrch and Niwbwrch (Newborough Warren). Within each of these large areas, a series of transect routes were chosen following main footpaths, along which a variety of surveys took place. Please see the site-by-site results section for the exact routes taken within each area.

Broadly, the surveys along these 'transect' routes included recording breeding birds, vegetation condition along pathways and at popular gathering points, mammal activity and litter abundance. Any other additional notes or sightings relevant to the study were also recorded, including insects, the presence of people and notes on grazing levels in some of the upland sites. For each of the surveys, a handheld GPS was carried to record the transect route and mark any useful waypoints, which enabled the later digitisation of the route and specific location for any rare or noteworthy sightings. The table below lists these main survey areas and a more detailed methodology for each.

The surveys took place on ten days between 6th June and 26th June 2020 to cover the seven sites and enable more than one transect in some of the larger upland sites. The surveys were spread out across this period due to changeable weather conditions and the need for appropriate weather to survey the higher altitude, more mountainous areas.

Survey Method 1

Target taxa

Breeding birds

General Survey method

A walked transect along main footpaths noting any birds and potential breeding activity.

Detailed methodology

The surveyor would walk a set transect route following established footpaths which are usually very well used by the public. The observer would scan left and right whilst walking this route, noting down any birds on a map and recording the GPS coordinates of any nests found of rarer breeding species (e.g. dotterel, golden plover, ring ouzel). Any breeding activity (e.g. singing male birds on territory or fledged juveniles) would be recorded using the BTO's breeding codes. There will be some points along the transect where it will be necessary to spend 10 minutes scanning habitats nearby (such as cliff faces, open rocky plateaus) to detect any birdlife. All the data will be recorded on a 1:25,000 OS map and accompanying survey sheets, with time of day, location and abundance. A GPS mapped route will be recorded to enable subsequent repeats of the survey.

Survey Method 2

Target taxa

Mammals

General Survey method

A walked transect noting down any mammals seen and evidence of mammal activity.

Detailed methodology

Whilst walking the same transect route as set out for the breeding bird survey, the surveyor would record any mammals seen (species, number and location), using a GPS to record the exact location for any scarcer species.

Any evidence of mammal activity would also be recorded during the walked transect, including disturbance of ground from badgers and foxes. Any fox scats would be recorded with a grid reference and would be removed from the path so subsequent visits can record any additions since the initial survey.

Survey Method 3

Target taxa

Vegetation

General Survey method

Footpaths would be assessed during the survey for vegetation height and species diversity.

Footpath transects in some areas and summit surveys to assess species presence/absence, diversity and abundance of plants.

Fixed-point photography as a record to allow future comparisons and assess change visually.

Detailed methodology

General vegetation surveys would be targeted at assessing the impacts of the reduced compaction around footpaths and popular gathering spots (e.g. on summits) on vegetation communities.

Footpath transects – for each general survey location (e.g. Yr Wyddfa), an appropriate place along popular footpaths would be chosen to carry out one of these transects. This would involve laying out a 10-20m transect line across a footpath and using a 1×1m quadrat at 2m intervals and noting down: plant species diversity, abundance and % cover.

Summit surveys – at popular gathering spots and summits (such as on Yr Wyddfa), we would use a measuring tape to lay out a circular survey radius of ~10m, within which we would assess the abundance, diversity and percentage cover of any plant species.

Fixed-point photography - during a transect, 5-10 locations would be chosen (at fairly regular intervals) to take a series of images of the path and surrounds using a wide angle lens. This would be aimed at

documenting areas such as popular gathering spots, heavily used footpaths and summit areas, but would also serve to document wider habitat conditions for future reference. Images would be taken using a Canon SLR and standard wide angle zoom lens, with the GPS coordinate/ grid reference noted for each location

Survey Method 4

Target taxa

Litter and plastic waste

General Survey method

Estimating the approximate quantity of the litter along footpaths.

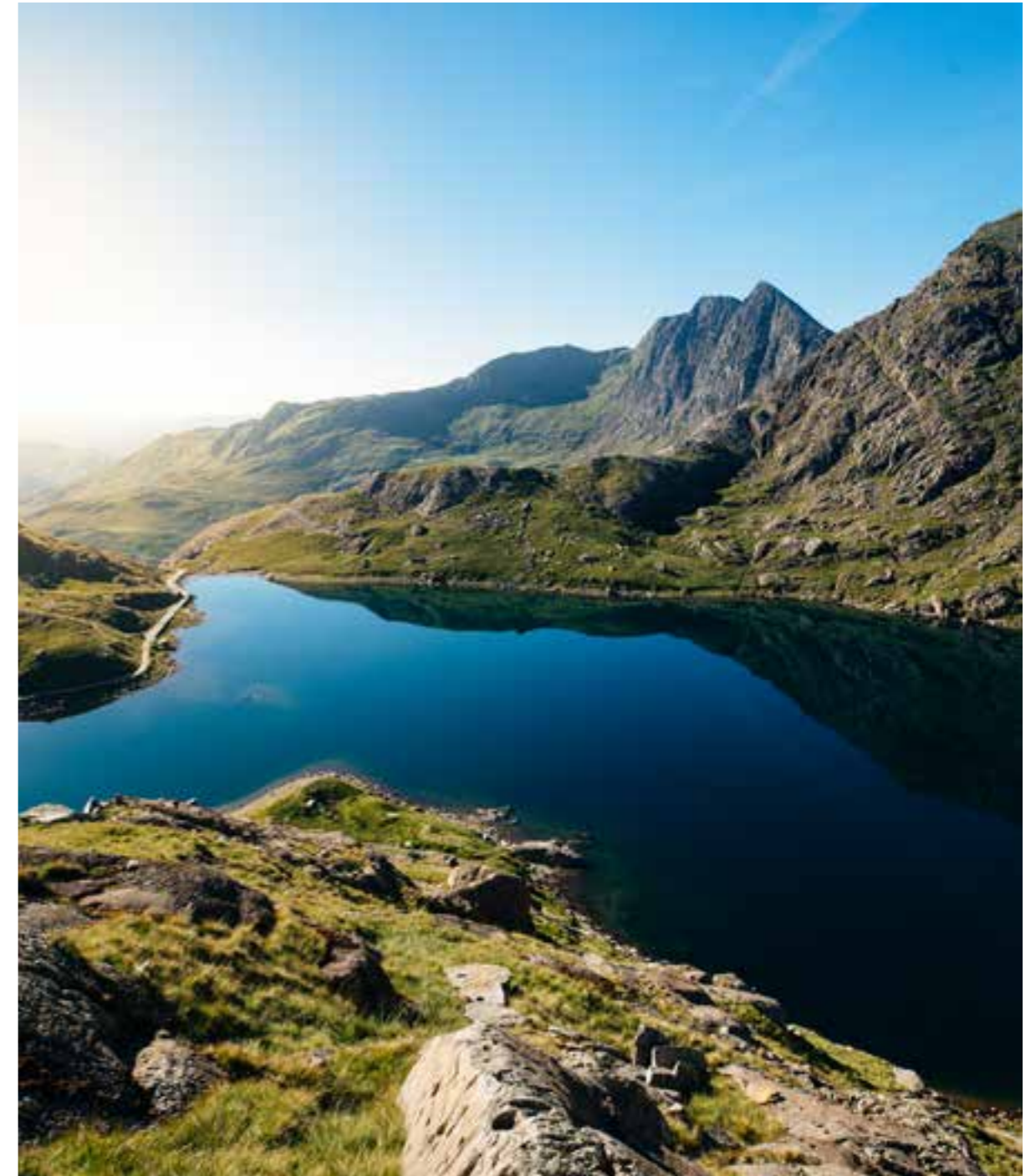
Detailed methodology

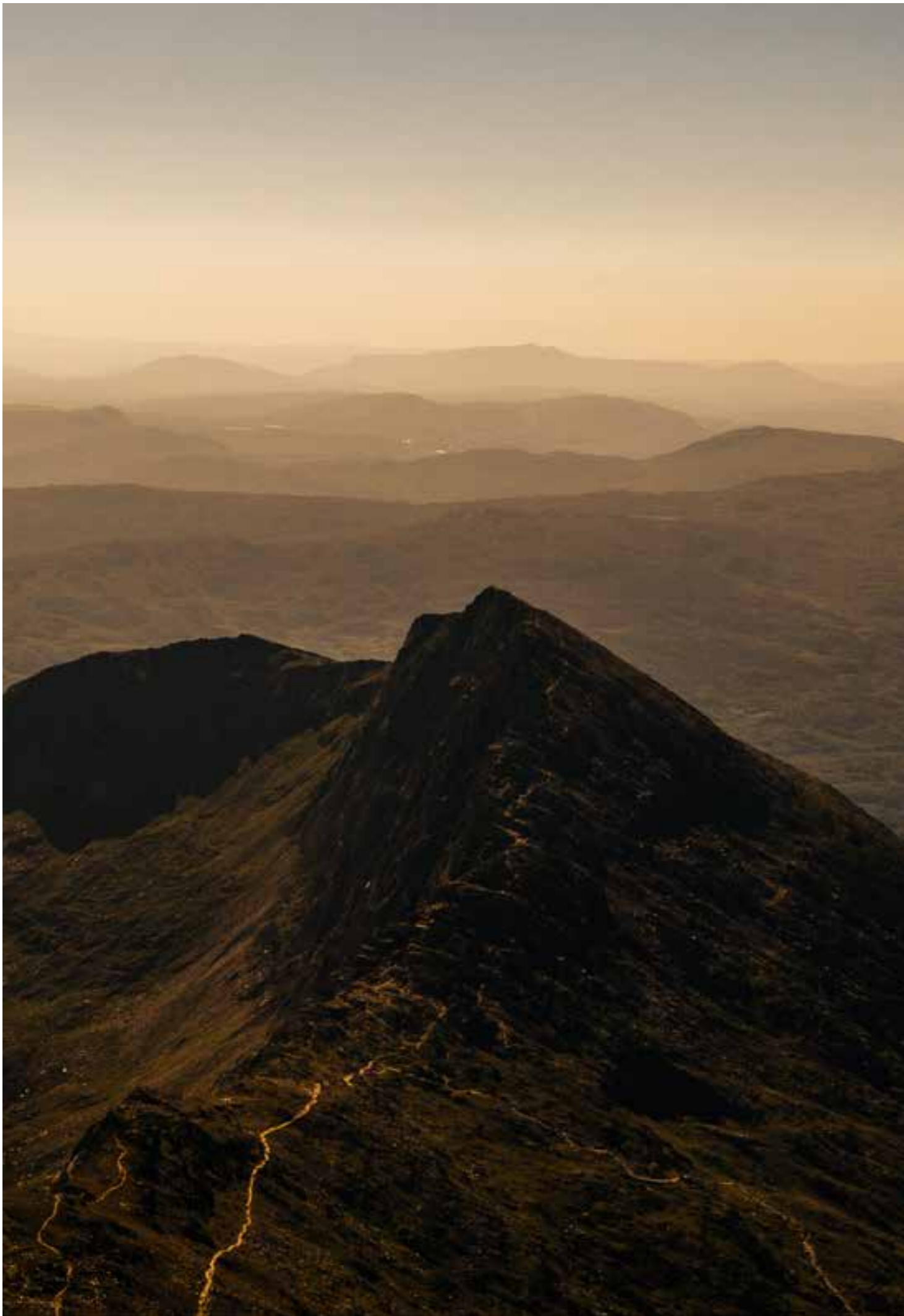
Litter abundance would be recorded by keeping a tally of items encountered during each footpath transect. Both the type of litter item (e.g. plastic bottle) and number would be recorded, alongside an exact location for more concentrated areas of litter pollution if encountered.

External surveys and results

In addition to the surveys carried out for this report, a number of anecdotal records were received from naturalists, farmers and individuals who were able to access some of these sites during the lockdown period. These sightings are included in the main results sections for each of the sites in the section below.

The results are presented below for each of the sites, with an overall summary of the findings given at the end of the report. Within each site, a short summary is given followed by the results for each of the different surveys carried out and a selection of images.





Survey Site 1

Yr Wyddfa National Nature Reserve

Site	Yr Wyddfa National Nature Reserve
Survey Dates	9 June 2020 24 June 2020
Transect Routes	Miner's track Llanberis path Watkin path

The surveys on Yr Wyddfa were divided into two visits: one to cover the Miner's track and Llanberis path (on 09 June 2020) and the other to cover the Cwm Llan area by taking the Watkin path to the summit and then the ridge path along to Bwlch Cwm Llan and back into the cwm (on 24 June 2020). See the map below for a more detailed overview of the exact route.

As outlined in the project methodology, this survey involved noting down any birdlife seen during the transect (especially signs of breeding), any mammal activity, litter abundance along footpaths, vegetation condition at several points and fixed-point imagery.

Weather conditions: on 9 June there were calm winds from the east (10-15mph) with clear skies at first before clouding over and mist concealing mountain tops; temperatures were mild (15-17°C). On 24 June there was very little wind (<5mph) with clear skies and warm temperatures (17-22°C).

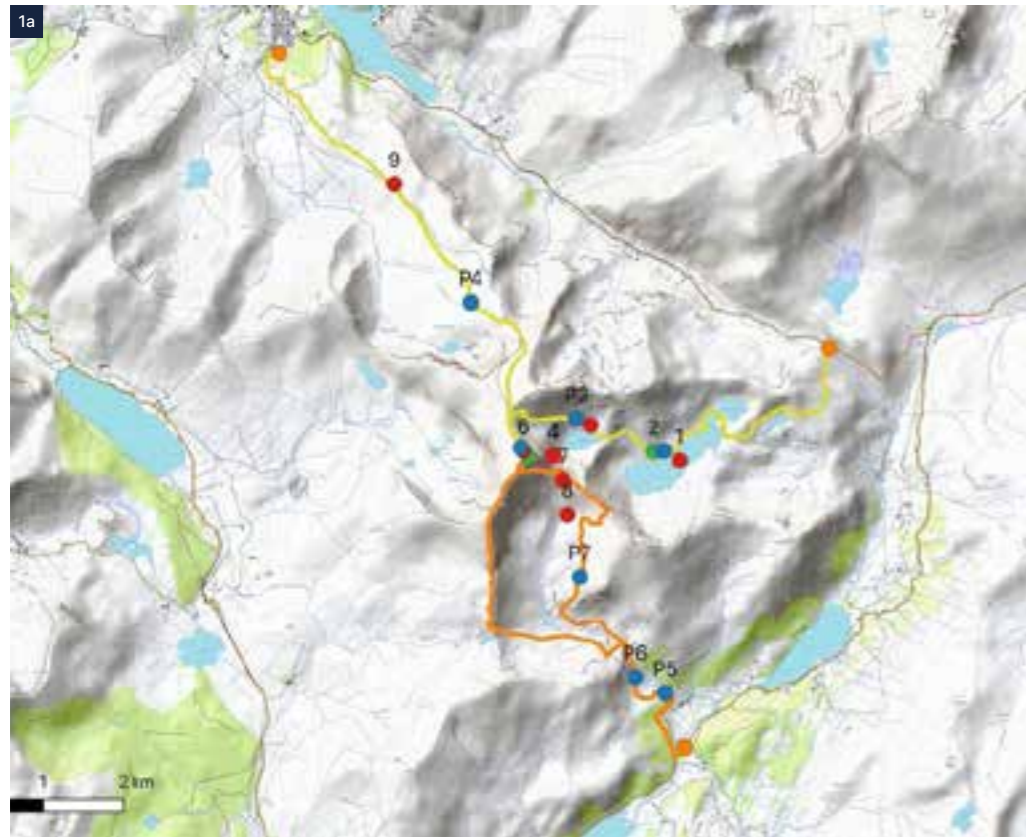


Figure 1a: Map of Yr Wyddfa showing the two separate survey routes (yellow = Miner's Track and Llanberis path, orange = Watkin path). Orange points are the start and end points of surveys, red points are target notes referred to in the results summary below, blue points are fixed-point photography sites (see section below) and green points are vegetation survey locations.

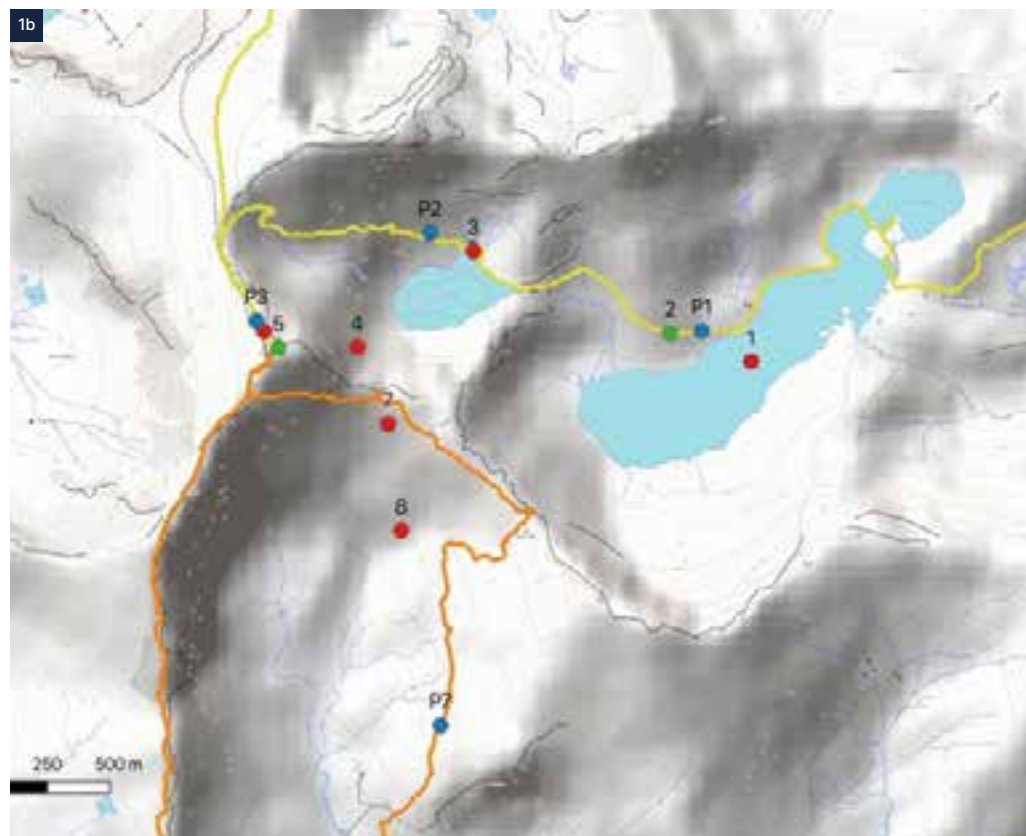


Figure 1b: A closer view of the Wyddfa summit and Glaslyn area.

Survey Results

A summary of the results for each different survey are given over the next pages, referencing the map in figures 1a and 1b using number in brackets for any specific target notes.

Birdlife

A total of 41 different species were recorded over the two visits to Yr Wyddfa (see summary table below), with Meadow Pipits, Northern Wheatears and Wrens being the most abundant species noted. The most notable sightings included three different Ring Ouzels, two Cuckoos, eight Common Sandpipers on Llyn Llydaw and four Choughs across the summit ridge near Y Lliwedd. Below is a summary of those sightings most likely to have been impacted by a lack of people in the area.

Common Sandpipers nesting around Llyn Llydaw (1): at least three pairs of common sandpipers were present around the lake, and seemed to be nesting close by the main path in several places (indicated by their reaction to our presence and alarm calls), particularly on the western end of Llyn Llydaw near the small causeway. This is a timid species which is very sensitive to disturbance from people.



Common sandpiper on Llyn Llydaw

Herring Gulls around Glaslyn and the summit: just two Herring Gulls were recorded around the perimeter of Glaslyn, which usually holds a small population of breeding birds. The highest count on the summit was 16, which were perched around the cairn and café area, a low count on all accounts considering their usual reliance on food discards from people around this popular gathering place.

Ring Ouzel territories: three different ring ouzels were seen during the two survey visits: one singing male on the cliffs above Glaslyn (4), another bird gathering food (and therefore potentially breeding) near the Llanberis path (9) and another on the scree near the summit at the top of the Watkin path (8). This species is very sensitive to human disturbance and usually keep to remote, craggy areas.

Choughs along the summit ridge: two Choughs were seen flying along the ridge from the summit towards Y Lliwedd, and another pair were recorded on 26 June around the summit and café area itself, with one bird even landing a short distance away from the café! Again, this species is one which is both a scarce breeding bird in Snowdonia and sensitive to disturbance from people.

Nesting birds along pathways: it was clear that a number of songbird species (in particular wheatear, pied wagtail, grey wagtail and meadow pipit) had nested either very close to popular pathways or often in the rocks beneath paths along the survey route. A high degree of disturbance from human traffic along pathways would likely have prevented this, but these birds would presumably then have nested elsewhere.

Vegetation

The Miner's track and Watkin path were noticeably vegetated in many places, with grasses, wildflowers and a number of other plant species growing up from within the cracks in the rocks and covering normally well-trodden sections of the path in many places. The area around the summit cairn on the top of Yr Wyddfa was photographed and a survey of the plant diversity within a 10m radius recorded, the results of which are in the table below. A total of 15 different plant species were recorded, including Lady's Mantle, Mossy Saxifrage and Heath Bedstraw.

Litter

A total of 22 different litter types were recorded across the three different footpaths during the surveys (see table 4 below), with 75 items altogether. There was a particularly dense hotspot of litter on the western end of Glaslyn along the shore (3) including 14 pieces of plastic wrapping, a glass Stella bottle, 2 socks and a plastic fork. Overall, small pieces of plastic wrappers were the commonest item found, with 36 in total, followed by metal drinks cans and plastic bottles. The Miner's track had the highest number of litter items of the three paths, followed by the Watkin path and the Llanberis path.

Other sightings

Signs of a Red Fox

A handful of Red Fox prints were found in the soft sediment around the edge of Llyn Llydaw, whilst two Red Fox scats were found along the Watkin path, but were not fresh.

Feral mountain goats

Four different herds of feral goats were recorded along the Miner's track and Llanberis path, totalling at least 35 animals overall. Two of these herds were quite close to the main path, whilst one was on the more typical inaccessible cliff area below the summit and above Glaslyn.

Images taken along the Miner's track above Llyn Llydaw (P1 on the map) and along the Watkin Path (P7 on map in figure 1) to illustrate the growth of vegetation along the pathways.



See 'Table 3: Results of a summit vegetation survey on Yr Wyddfa' on page 22



See 'Table 4: Results of the litter survey along the three different routes on Yr Wyddfa' on page 23

Migratory insects

An impressive gathering of dispersing insects were recorded on the summit cairn during the first survey (9th June), involving 15-20 different species and including Sawflies (*Rhogogaster* sp.), Pine Weevils (*Hylobius abietis*) and many small spiders which disperse via a thin thread of silk. On the second survey (24th June), 12 Red Admiral, 2 Painted Lady and 3 Dark Green Fritillary butterflies were recorded during the transect, most of which were migrating through in the warm and settled weather.

Juniper Bushes (*Juniperus communis*)

Well over 50 different juniper bushes were recorded on the tops of rocks and rock ledges inaccessible to sheep along the upper reaches of the Watkin path (8) with a handful of plants along the ridge towards Bwlch Cwm Llan.

Grazing levels

Whilst not specifically monitored during the surveys, it was noticeable how the habitats and vegetative communities differed according to grazing levels in the different areas of Yr Wyddfa. The area around Cwm Llan and along the Llanberis path from the summit seemed to contain the highest densities of sheep and were the most heavily grazed, whereas the area between Pen y Pass and Glaslyn along the Miner's path seemed to have a lighter level of grazing and a herd of some 30 welsh black cattle. As noted above, we recorded some 35 feral goats in addition to the sheep and cattle in a number of sites, some of which were on the ledges below the summit where scarcer alpine plant species would be growing.

People

There was just one person during the survey on 9th June, present on the upper section of the Miner's path doing maintenance work on the path; but on 24th June we saw six people along the summit ridge, around 30 people along the Cwm Llan waterfalls and riverside, and a further three people in the woods at the beginning of the Watkin path.

1. A plastic bottle along the upper section of the Watkin path in Cwm Llan
2. Juniper bush (*Juniperus communis*) atop a boulder along Watkin path



Table 2: Bird survey results for Yr Wyddfa transects

Site name: Yr Wyddfa

Survey type: Breeding birds

Surveyors: Ben Porter with support from Jo Porter, Steve Porter, Rachel Porter and Deio Williams

Survey dates: 9 June 2020; 24 June 2020

Species	Scientific name	T1	T2	T3	Total
Blackbird	Turdus merula	0	0	1	1
Blackcap	Sylvia atricapilla	0	0	2	2
Blue Tit	Cyanistes caeruleus	0	0	10	10
Bullfinch	Pyrrhula pyrrhula	0	0	1	1
Buzzard	Buteo buteo	2	1	5	8
Canada Goose	Branta canadensis	18	0	0	18
Carrion Crow	Corvus corone	0	1	22	23
Chaffinch	Fringilla coelebs	0	0	1	1
Chiffchaff	Phylloscopus collybita	0	0	4	4
Chough	Pyrrhocorax pyrrhocorax	0	0	4	4
Coal Tit	Parus ater	0	0	4	4
Common Sandpiper	Actitis hypoleucos	8	0	0	8
Common Swift	Apus apus	0	1	0	1
Cuckoo	Cuculus canorus	0	2	1	3
Dipper	Cinclus cinclus	1	0	0	1
Goldcrest	Regulus regulus		0	4	4
Great Tit	Parus major	0	0	8	8
Grey Wagtail	Motacilla cinerea	2	0	7	9
Herring Gull	Larus argentatus	16	2	13	31
House Sparrow	Passer domesticus	0	0	1	1
Kestrel	Falco tinnunculus	0	1		1
Long-tailed Tit	Aegithalos caudatus	0	0	7	7
Mallard	Anas platyrhynchos	2	0	0	2
Meadow Pipit	Anthus pratensis	37	26	81	144
Mistle Thrush	Turdus viscivorus		1	2	3
Northern Wheatear	Oenanthe oenanthe	14	17	6	37
Nuthatch	Sitta europaea	0	0	10	10
Pied Flycatcher	Ficedula hypoleuca	0	0	6	6

Species	Scientific name	T1	T2	T3	Total
Pied Wagtail	Motacilla alba yarrellii	6	0	2	8
Raven	Corvus corax	4	4	18	26
Ring Ouzel	Turdus torquatus	1	1	1	3
Robin	Erithacus rubecula	0	0	1	1
Siskin	Spinus spinus	0	0	1	1
Skylark	Alauda arvensis	0	14	0	14
Song Thrush	Turdus philomelos	0	0	1	1
Spotted Flycatcher	Muscicapa striata	0	0	1	1
Stonechat	Saxicola torquata	3	3	3	9
Tree Pipit	Anthus trivialis	0	0	1	1
Treecreeper	Certhia familiaris	0	0	4	4
Willow Warbler	Phylloscopus trochilus	0	0	4	4
Wren	Troglodytes troglodytes	10	2	46	58
Total number of species		14	14	34	41
Total number of birds		124	76	283	483

T1: Miner's path**T2: Llanberis path****T3: Watkin path and Cwm Llan**

Blackcap – Singing male birds; **Canada Goose** – Two Canada Goose pairs with chicks: one pair on Llyn Teyrn with three chicks, and one pair along the edge (on the path) of Llyn Llydaw with 6 chicks; **Chiffchaff** – Singing male birds; **Chough** – Two pairs, breeding nearby?; **Common Sandpiper** – At least 3 pairs around Llyn Llydaw, most likely to be nesting; **Cuckoo** – One singing in the valley below Llyn Du'r Arddu; one singing near Hafod y Newydd; **Dipper** – A fledgling bird; **Goldcrest** – Singing male birds; **Grey Wagtail** – Several singing males and nesting pair; **Herring Gull** – Only one pair around Glaslyn; **Long-tailed Tit** – Fledged young; **Meadow Pipit** – Many fledged young and several pairs nesting along pathways; **Northern Wheatear** – Fledged young, singing male birds; **Nuthatch** – Family group with fledged young; **Pied Wagtail** – Several nesting pairs; **Raven** – Family flocks with fledged young; **Ring Ouzel** – Singing male on cliffs below summit; **Skylark** – Many singing males; **Song Thrush** – Singing male birds; **Spotted Flycatcher** – Possible breeding pair; **Stonechat** – Fledged young; **Tree Pipit** – Singing male birds; **Treecreeper** – Singing male; **Willow Warbler** – Singing male birds; **Wren** – Many singing males

Table 3: Results of a summit vegetation survey on Yr Wyddfa

Site name: Yr Wyddfa
 Survey type: Summit vegetation survey (10m radius around summit)
 Surveyors: Ben Porter, Jo Porter, Steve Porter
 Survey date: 9 June 2020

Species	Scientific name	DAFOR Score
Annual Meadow Grass	Poa annua	Frequent
Dog Lichen	Peltigera sp.	Rare
Sheep's Fescue	Festuca ovina	Occasional
Mossy Saxifrage	Saxifraga bryoides	Frequent
Mouse-ear sp.	Cerastium sp.	Occasional
English Stonecrop	Sedum annuum	Occasional
Mosses	Bryophyte sp.	Abundant
Moss Champion	Silene acaulis	Rare
Common Bent grass	Agrostis capillaris	Occasional
Creeping Buttercup	Ranunculus acris	Rare
Lady's Mantle	Alchemilla mollis	Rare
Hoary Plantain	Plantago media	Rare
Dandelion	Taraxicum sp.	Rare
Heath Bedstraw	Gallium saxatile	Rare
Viviparous Fescue	Festuca vivipara	Rare
Yarrow	Achillea millifolium	Rare
Total number of species		15

Table 4: Results of the litter survey along the three different routes on Yr Wyddfa

Site name: Yr Wyddfa
 Survey type: Litter survey
 Surveyors: Ben Porter, Jo Porter, Steve Porter
 Survey date: 9 June 2020; 24 June 2020

Litter type	T1	T2	T3	Total
Dog poo bag	1	0	0	1
Styrofoam	1	0	0	1
Plastic ball	1	0	0	1
Tissue packet	1	0	0	1
Plastic wrapper pieces	32	4	0	36
Plastic bottle	4	0	3	7
Metal drinks can	1	3	4	8
Socks	2	0	0	2
Plastic fork	1	0	0	1
Buff	0	1	0	1
Disposable coffee cup	0	3	0	3
Tin foil piece	0	1	0	1
Banana peel	1	0	0	1
Orange peel	1	0	0	1
Yoghurt pot	0	0	1	1
Plastic bag	0	0	2	2
Plastic bottle cap	0	0	2	2
Lighter	0	0	1	1
Plastic tub	0	0	1	1
Cigarette packet	0	0	1	1
Waist pouch	0	0	1	1
Plastic sachet	0	0	1	1
Total number of litter types	11	5	10	22
Total number of litter items	46	12	17	75

T1: Miner's path
T2: Llanberis path
T3: Watkin path and Cwm Llan



1. Y Lliwedd from Pen-y-Pass
 2. Starry Saxifrage along the Miner's track
 3. A weevil on Yr Wyddfa summit cairn
 4. Bell Heather and Yr Aran
 5. Mossy Saxifrage along the Miner's track
 6. Red-billed Chough on Yr Wyddfa summit





Fixed-point pathway images to record vegetation condition

- 1. Llyn Llydaw on Miner's track (P1)
- 2. Glaslyn looking towards Y Lliwedd (P2)
- 3. Looking along the Llanberis path c. 100 metres from the summit (P3)
- 4. Half way along the Llanbers path (P4)
- 5. Beginning of the Watkin path in Cwm Llan (P5)
- 6. Watkin path on approach to Bwlch Ciliau (P6)





Survey Site 2

Cwm Idwal National Nature Reserve, Tryfan and y Glyderau

Site	Cwm Idwal National Nature Reserve, Tryfan and y Glyderau
Survey dates	14 June 2020 25 June 2020
Transect routes	Main footpaths around Cwm Idwal, Y Garn, Tryfan and y Glyderau

Like most of the larger upland sites, the surveys in the Ogwen Valley were divided into two visits: one to cover Cwm Idwal, Y Garn and the area surrounding these sites (on 14 June 2020) and another to cover Tryfan, y Glyderau and Llyn Bochlwyd (on 25 June 2020). These routes are detailed on the map below.

During these surveys, observers recorded any birdlife seen during the transect (especially signs of breeding), mammal activity, litter abundance along footpaths, vegetation diversity on Y Garn summit and several fixed-point images along the pathways.

Weather conditions: on 14 June there was 50% cloud cover to being, with rain showers and 100% cloud cover by midday; wind strength was 20mph on summit tops from the east, with temperatures mild (15°C). On 25 June conditions were very hot, with 25°C temperatures by midday, a 15mph wind from the SE and no cloud cover.

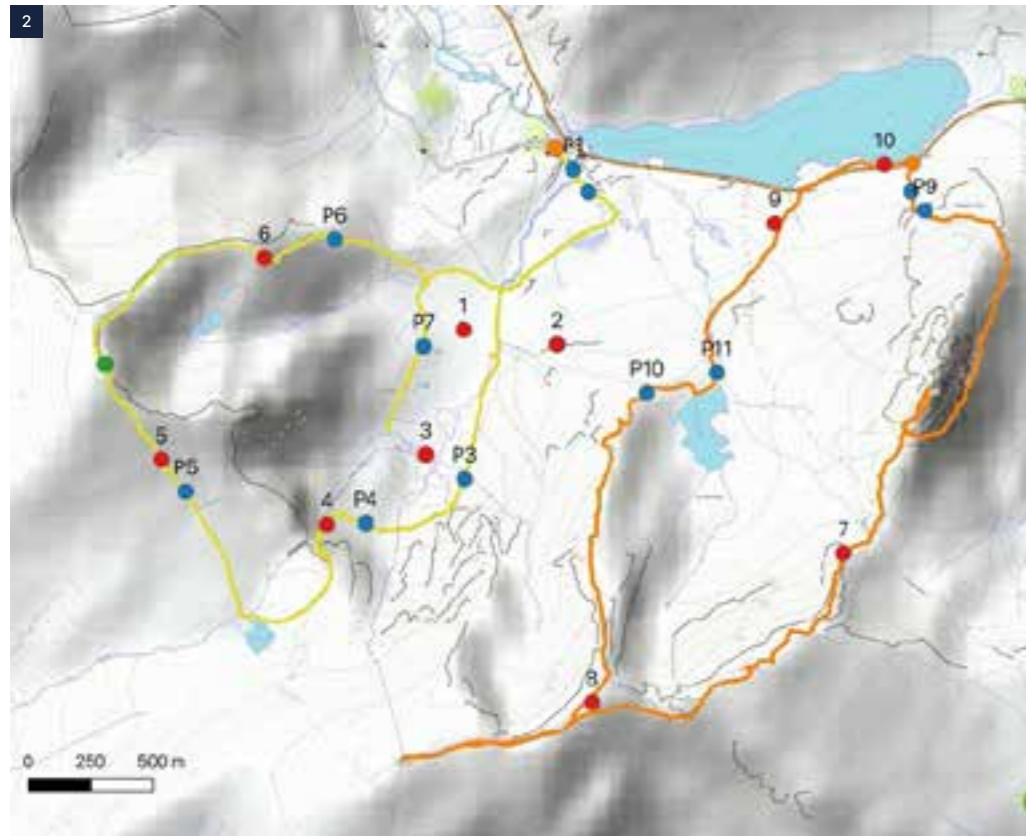


Figure 2: A map of the Ogwen Valley and survey area showing the two separate transect routes (yellow = Cwm Idwal and Y Garn, orange = Tryfan and y Glyderau). Orange points are the start and end points of the surveys, red points are target notes referred to in the results summary below, blue points are fixed-point photography sites (see section below) and green points are vegetation survey locations.

See 'Table 5: Results of the breeding bird surveys around Cwm Idwal, Tryfan and y Glyderau' on page 36



A male Ring Ouzel near the main footpath on the descent from Y Garn

Survey results

A breakdown of the survey results for this site are given below, referencing the map above for location-specific notes using numbers in parentheses.

Birdlife

A total of 28 different species were recorded over the two survey visits, with 25 species on the first transect around Cwm Idwal and Y Garn, and 15 species on the second transect over Tryfan and the Glyderau (see table 5 below). The most numerous species recorded was the Meadow pipit, with an impressive total of 169 individuals seen over the two transects and several pairs nesting along the paths; Wheatears and Wrens were also well represented, with 50 singing male Wrens and 24 Wheatears recorded overall. The scarcer sightings included an excellent five Ring Ouzels, six Twites, nine Common Sandpipers, a fledgling Dipper and two singing Cuckoos. A breakdown of the most noteworthy sightings are given below.

Birdlife around Llyn Idwal (1): three pairs of Common Sandpipers were present on the western flanks of the lake, with anxious calls on arrival hinting at the likelihood of these birds breeding there. With a main footpath less than 20 metres away for most of the lake's edge, it is likely these sensitive breeding waders would have been much more susceptible to disturbance under normal circumstances. A pair of Great Crested Grebes were nesting on Llyn Idwal amongst the rushes at its southern end (target note 4 on the map), although it's unclear what stage of breeding they were at (most likely incubation). A fledgling Dipper and pair of likely nesting Grey Wagtails were seen on the northern end of the lake where the main footpath arrives at the edge of the lake.

Ring Ouzels: Five Ring Ouzels were seen overall during the two surveys: one bird was heard alarm-calling on Y Gribbin facet above Llyn Idwal (2), another was seen feeding opposite Llyn Ogwen on the mountainside very close to the footpath (9) and a pair with a fledgling chick were less than 5 metres from the path at grid reference SH637599 on the descent from Y Garn (6). This pair (the male of which occasionally burst into song) seemed to have nested very close to the path, the fledgling being a very young bird which hadn't long left the nest. Such elusive birds are usually very sensitive to disturbance and would unlikely have been so visible from the main footpaths under usual levels of visitor use.

Birds nesting along pathways: in similarity to all the upland surveys, several Meadow pipit pairs seemed to have nested close to the pathways in sections of the transect, flushing from very nearby and alarm calling close to paths in many places, with fledgling birds erupting from the edges of paths too. Wheatears and the occasional pair of Stonechats were close to the main pathways, in addition to the Ring ouzel pair referred to above.

Vegetation

It was clear that the lack of human usage of the main pathways had led to something of an explosion of plant life and vegetation in some sections, particularly on the more popular routes which are formed of large boulders. Here, various flowers, grasses and other plants (such as Heath Bedstraw, Wild Thyme and Lemon-scented Male Fern) were growing up in between the cracks and vegetating over the path edges too. The effect of the lessened trampling was less obvious on the rockier mountain ridges between y Glyderau and along Y Garn, although a large number of Dwarf Willow plants (*Salix herbacea*; point 5 on the map above) were growing very close to the path ascending Y Garn on its south-eastern flanks. Whether these are normally trampled away by people using the paths is difficult to tell.

The flowering plants beside the path on the ascent from Cwm Idwal through the boulder field along Llwybr y Carw were noticeably verdant, with Mossy saxifrage, Wild thyme and also Stagshorn clubmoss in particular abundance. This area was spectacular for its assemblage of flowering alpine/montane plant species, particularly on rocky ledges and on the cliff ledges on the rock faces near 'Devil's Kitchen'. Species such as Wood Avens, Snowdon Lilly, Oak and Beech Ferns, Wilson's Filmy Ferns, Purple Saxifrage, Globeflower, Mossy Saxifrage and Mountain Sorrel were recorded in this area, but these were very much away from pathways and it is unlikely that such inaccessible sites would normally be impacted by visitors. We thus did not include surveys or results from these areas, but it is worthy of note that the growth seemed to be particularly verdant this year, perhaps a consequence of the weather conditions during the spring.

Starry saxifrage was noticeably abundant during the ascent along Crib y Bigod ('Bristly Ridge) on the northern side of Glyder Fach, with large plants growing out from the cracks in the slabs where many people usually scramble up. Whilst most of the summit areas during these surveys didn't warrant a vegetation survey due to their rocky nature and absence of gathering spots, one survey was conducted on Y Garn summit and recorded seven species in total (see table 6 below).

Mossy Saxifrage (Saxifraga bryoides) with Devil's Kitchen in the backdrop.

See 'Table 6: Results from summit vegetation survey on Y Garn' on page 38



See 'Table 7: Results of the litter survey along the main footpaths during both transects' on page 38

Litter

It was a pleasantly litter-free series of transects for this site, with just 11 litter items of four different types recorded overall: eight dog poo bags along the edge of Llyn Idwal, a sweet wrapper, a plastic bottle and a metal drinks can.

Other sightings

Feral mountain goats

A minimum of 99 goats were seen during the surveys, the largest herd being around 50 in Bwlch Tryfan, although other herds were seen atop y Glyderau and near Y Garn; all very near to main footpaths.

Insect life

During the calm and very warm conditions on the second transect (25 June), a wealth of insect life was recorded, especially a number of species passing over the mountain ridges on migration. This included some 16 Red Admiral butterflies, a Hummingbird Hawkmoth, a Painted Lady butterfly, 3 Small Tortoiseshells and seven male Northern Eggar moths. A single scarce mountain micro moth of the species *Phiaris schulziana* was also recorded, amongst the grass beside the path leading up to Glyder Fach summit.

Grazing levels

It was noticeable how verdant the vegetation was within the Cwm Idwal NNR, with virtually no sheep seen in this area and a diverse mix of heather, bilberry and cliff ledges full of flourishing plantlife. There were much higher densities of sheep present on the area around the summits of y Glderau and around Y Garn, with the habitat largely dominated by grass and a low carpet of dwarf willows in some areas. Feral goats were noticeably abundant, with close to 100 seen during both surveys including a single herd of 50 near Tryfan. A small herd of 20-30 welsh black cattle were present in the area approaching Llyn Idwal from the visitor centre.

People

On the first survey of the area (14th June) just five people were seen around Llyn Idwal towards the end of the survey, whereas several groups were present around the lake (15 in total) on 25th June with two more people on the ridge near y Glyderau.

See 'Table 8: Other incidental sightings recorded during the surveys in the Ogwen Valley' on page 39

1. One of the eight dog poo bags left beside the path on the footpath circling Llyn Idwal
2. One of the many feral Goats recorded during the survey, this one part of a herd of some 50 individuals in Bwlch Tryfan beside the footpath.



Table 5: Results of the breeding bird surveys around Cwm Idwal, Tryfan and y Glyderau

Site name: Ogwen Valley: Cwm Idwal, Tryfan and y Glyderau
 Survey type: Breeding birds
 Surveyors: Ben Porter with help from Jo Porter and Steve Porter
 Survey dates: 12 June 2020; 25 June 2020

Species	Scientific name	T1	T2	Total
Meadow Pipit	Anthus pratensis	101	68	169
Northern Wheatear	Oenanthe Oenanthe	18	6	24
Wren	Troglodytes troglodytes	19	31	50
Stonechat	Saxicola torquata	6	1	7
Skylark	Alauda arvensis	3	0	3
Raven	Corvus corax	5	10	15
Pied Wagtail	Motacilla alba yarrellii	3	0	3
Herring Gull	Larus argentatus	2	2	4
Common Sandpiper	Actitis hypoleucos	7	2	9
Dipper	Cinclus cinclus	1	0	1
Grey Wagtail	Motacilla cinerea	8	2	10
Ring Ouzel	Turdus torquatus	4	1	5
Carrion Crow	Corvus corone	3	1	4
Twite	Carduelis flavirostris	6	0	6
Kestrel	Falco tinnunculus	1	1	2
Mallard	Anas platyrhynchos	3	0	3
Buzzard	Buteo buteo	1	5	6
Cuckoo	Cuculus canorus	2	0	2
Canada Goose	Branta canadensis	22	0	22
Robin	Erithacus rubecula	1	1	2
Willow Warbler	Phylloscopus trochilus	1	0	1
Great Crested Grebe	Podiceps cristatus	1	1	2
Grey Heron	Ardea cinerea	2	0	2
Red Kite	Milvus milvus	0	1	1
House Martin	Delichon urbica	6	0	6

Species	Scientific name	T1	T2	Total
Lesser Black-backed Gull	Larus fuscus	1	0	1
Dunnock	Prunella modularis	1	0	1
Blackcap	Sylvia atricapilla	2	0	2
Total number of species		25	15	28
Total number		230	133	363

T1: Cwm Idwal and Y Garn

T2: Tryfan and y Glyderau

Meadow Pipit – Nests close to pathways, singing males, fledged young; **Northern Wheatear** – Singing males and fledged young; **Wren** – Singing males; **Stonechat** – Fledged young, singing males, birds gathering food; **Skylark** – Singing males; **Raven** – Many fledged young in family groups; **Pied Wagtail** – One male gathering food along edge of Llyn Y Cwn; **Common Sandpiper** – Three pairs along west edge of Llyn Idwal, one pair along edge of Llyn Ogwen; **Dipper** – Fledged young; **Grey Wagtail** – Nesting pairs close to main paths, singing males; **Ring Ouzel** – Pair with fledged young; three singing males; **Buzzard** – Two Possible breeding pairs; **Cuckoo** – Singing males; **Canada Goose** – One brood of seven chicks on Llyn Idwal; **Robin** – Singing males; **Willow Warbler** – Singing male; **Great Crested Grebe** – Pair nesting in reeds in southern end of Llyn Idwal; **House Martin** – Gathering mud for lining nests on Ogwen cottages; **Blackcap** – Singing males

Table 6: Results from summit vegetation survey on Y Garn

Site name: Y Garn (SH630596)
 Survey type: Summit vegetation survey (10m radius around summit)
 Surveyors: Ben Porter and Jo Porter
 Survey date: 14 June 2020

Species	Scientific name	DAFOR Score
Moss sp	-	Abundant
Sheep's Fescue	Festuca ovina	Frequent
Common Bent grass	Agrostis capillaris	Frequent
Heath Bedstraw	Galium saxatile	Occasional
Bilberry	Vaccinium myrtillus	Occasional
Parsley Fern	Cryptogramma crispa	Occasional
Meadow Grass sp.	Poa sp.	Occasional
Viviparous Fescue	Festuca vivipara	Occasional
Sweet Vernal Grass	Anthoxanthum odoratum	Frequent
Total number of species		9

Table 7: Results of the litter survey along the main footpaths during both transects

Site name: Cwm Idwal and the Glyderau
 Survey Type: Litter survey
 Surveyors: Ben Porter, Jo Porter, Steve Porter
 Survey date: 14 June 2020; 25 June 2020

Litter type	T1	T2	Total
Dpg poo pag	8	0	8
Sweet wrapper	0	1	1
Plastic bottle	0	1	1
Metal drinks can	0	1	1
Total number of litter types	1	3	4
Total number of litter items	8	3	11

T1: Cwm Idwal and Y Garn
T2: Tryfan and the Glyderau

Table 8: Other incidental sightings recorded during the surveys in the Ogwen Valley

Site name: Dyffryn Ogwen: Cwm Idwal, Tryfan and the Glyderau
 Survey type: General
 Surveyors: Ben Porter, Jo Porter and Steve Porter
 Survey date: 14 June 2020; 25 June 2020

Species	Scientific Name	Date	Number
Bilberry Bumblebee	Bombus monticola	14/06	50
Dwarf Willow	Salix herbacea	14/06	Many
Feral Goat (1)	-	14/06	14
Feral Goat (2)	-	25/06	50
Feral Goat (3)	-	25/06	35
Northern Eggar	Lasiocampa quercus	25/06	1
-	Phiaris schulziana	25/06	1
Starry Saxifrage	Saxifraga stellaris	25/06	Many
Golden-ringed Dragonfly	Cordulegaster boltonii	25/06	1
Red Admiral	Vanessa atalanta	25/06	16
Small Tortoiseshell	Aglais urticae	25/06	3
Hummingbird Hawkmoth	Macroglossum stellatarum	25/06	1
Northern Eggar	Lasiocampa quercus	25/06	7
Harlequin Ladybird	Harmonia axyridis	25/06	1
Painted Lady	Vanessa cardui	25/06	1

Bilberry Bumblebee – along the edge of Llyn Idwal on Wild Thyme flowers; **Dwarf Willow** – along path to summit of Y Garn from the south-east; **Feral Goat (1)** – on descent from Y Garn along northern edge of Cwm Clyd; **Feral Goat (2)** – Bwlch Tryfan; **Feral Goat (3)** – On the top area around Castell y Gwynt; **Northern Eggar** – Tryfan summit; **Phiaris schulziana** – Glyder Fach; **Starry Saxifrage** – Bristly Ridge; **Golden-ringed Dragonfly** – beginning of Heather Terrace; **Red Admiral** – between Glyder Fach, Glyder Fawr and Llyn Bochlwyd; **Small Tortoiseshell** – between Glyder Fach, Glyder Fawr and Llyn Bochlwyd; **Hummingbird Hawkmoth** – between Glyder Fach, Glyder Fawr and Llyn Bochlwyd; **Northern Eggar** – between Glyder Fach, Glyder Fawr and Llyn Bochlwyd; **Harlequin Ladybird** – on the summit of Glyder Fach; **Painted Lady** – between Glyder Fach, Glyder Fawr and Llyn Bochlwyd;



1. Wild Thyme (*Thymus polytrichus*) beside the path ascending from Llyn Idwal into the boulder field
 2. xx
 3. The beginning of the main footpath to Llyn Idwal at the visitor centre
 4. Starry Saxifr (*Saxifraga stellaris*) on the ascent to Glyder Fach
 5. Dwarf Willow (*Salix herbacea*) on Y Garn
 6. A Bilberry Bumblebee (*Bombus monticola*) on Wild Thyme (*Thymus polytrichus*)



1. xx
 2. Mwsog Alpaidd (*Diphysium alpinum*) uwchlaw Llyn Idwal
 3. xx
 4. Cyw Bronwen y Dŵr (*Cinclus cinclus*) ger Llyn Idwal
 5. xx
 6. Llyn Ogwen o Tryfan



Fixed-point pathway images to record vegetation condition

- 1. Beginning of path to Llyn Idwal (P1)
- 2. Midway to Llyn Idwal (P2)
- 3. Ascending towards Idwal Slabs (P3)
- 4. Ascending towards boulder scree (P4)
- 5. Ascent up Y Garn's southern face (P5)





6. Descending from Y Garn to Llyn Idwal (P6)
 7. Along edge of Llyn Idwal (P7)
 8. Start of ascent to Y Tryfan (P8)
 9. Looking over to Llyn Ogwen from the base of the north east side of Tryfan (P9)
 10. Descending from Y Gribbin towards Llyn Bochlwyd (P10)
 11. Descending from Llyn Bochlwyd towards Llyn Ogwen (P11)





Survey Site 3

Cader Idris National Nature Reserve

Site	Cader Idris National Nature Reserve
Survey dates	20 Mehefin 2020 26 Mehefin 2020
Transect routes	Pony Path Fox's track Minffordd Path

To cover a diversity of areas around the iconic mountain of Cader Idris, the surveys were split into two main transects: one taking the Pony Path from the north side of Cader at Ty Nant, ascending along its western flank to the summit before returning back into the valley past Llyn y Gader and Llyn Gafr (carried out on 20 June 2020); the second transect took the Minffordd path up through the woodland near Minffordd and into Cwm Cau, before ascending over Craig Cau and then traversing across the summit ridge to Mynydd Moel before descending back into the Cwm Cau area (carried out on 26 June 2020).

Surveys carried out during these two visits included recording any birdlife (along with any signs of breeding activity), any signs of mammal activity, litter abundance along footpaths, a single vegetation path transect and several fixed-point images along the pathways. A vegetation survey was not carried out on the summit due to the rocky nature of the cairn area and the marked absence of plantlife.

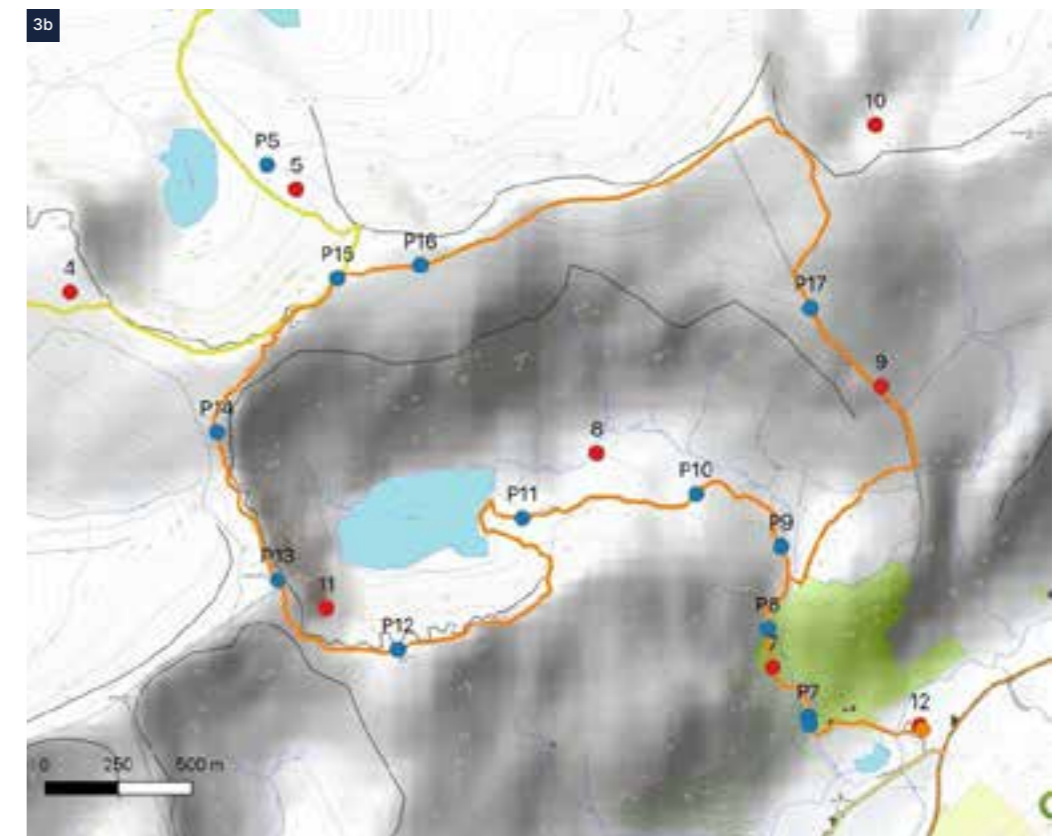
Weather conditions: on 20 June there was 100% cloud cover and calm winds (<10mph) from the north-west, with mist and light rain on the summit before clearing to a hot and sunny end to the survey at midday (40% cloud cover). On 26 June there was 100% cloud cover throughout the survey, with low cloud moving in towards the end, the temperatures were very mild (19°C) and there was a light sou-westerly wind (10-15mph).

The two maps below outline the two transect routes over Cader Idris and display a number of points referred to in the rest of the results section below.

A Dark Green Fritillary (*Speyeria aglaja*) on flowering Blackberry along Cader Idris's Pony Path



Figure 3a and 3b: maps of the Cader Idris survey area showing the two separate transect routes (yellow line = Pony Path on 20 June in Figure 3a, orange line = Minfordd path on 26 June in figure 3b). Orange points are the start and end points of the surveys, red points are target notes referred to in the results summary below, blue points are fixed-point photography sites (see section below) and green points are vegetation survey locations.



1. Bilberry (*Vaccinium myrtillus*) with Cyfrwy and Llyn y Gader in the background
2. xx



See 'Table 9: Results from the bird surveys along the two routes on Cader Idris' on page 60

Survey Results

A breakdown of the survey results for this site are given below, referencing the map above for location-specific notes using numbers in parentheses.

Birdlife

A total of 49 bird species were recorded across the two transects, with 36 species along the Pony Path route and 37 species along the Minffordd Path (see table 9 below for the full summary of results for these transects). It was a highly diverse series of surveys for birdlife, with both an excellent abundance of common species such as Meadow pipits, and also a brilliant selection of scarcer species too. This is certainly in part due to the diversity of habitats encountered along the routes, from the woodland areas in the lower areas of the mountain to the upland habitats along the mountain ridge and surrounding slopes. The weather conditions during the surveys were also highly favourable, with low winds and mild temperatures.

By far the commonest species (once again!) were Meadow pipits, with 78 recorded along the Pony Path and 98 on the Minffordd Path, including a good number of singing males and many fledgling chicks too. Wheatears, Stonechats and Wrens were also present in good numbers, with a particularly diverse area for birdlife in the marshy grassland below Llyn Cau at point 8, where the highest numbers of these commoner species were seen, along with species such as Willow Warblers, Grey Wagtails, Blue Tits and Linnets.

A superb selection of scarcer species were noted during the survey, including Whinchat, Grasshopper Warbler, Merlin, five Ring Ouzels, a pair of Common Sandpiper, a female Goosander and a small passage of raptors during the second survey which included an Osprey, two Red Kites and a Peregrine Falcon flying east with prey gripped in its talons.

Birds nesting along paths: whilst a general abundance of songbirds was very noticeable along the paths, there were several common species (Meadow pipits, Wheatears and Stonechats) which had likely nested along the edges of the paths or very close by in several locations along both transects. Scarcer species were also noted close to the main footpaths: a male Whinchat was alarm calling very near the path at SH693139 (point 1) and perhaps nesting nearby; with a Grasshopper Warbler singing from atop a clump of heather at the same site (1) again near to the path.

Ring Ouzels: it was a productive series of transects for this secretive mountain-dweller, with one bird flushed from near the main path at SH703131 (point 4); one bird calling from the cliffs below Craig Cau at SH711120 (point 11); two birds alarm calling from the cliffs to the north-east of Mynydd Moel at SH729136 (point 10) and a single bird near the main footpath at SH731127 (point 9).

Birds of prey: there were more raptor species seen around Cader Idris than any of the other sites visited in this period. A male Merlin was seen during the first transect flying towards the cliffs north of Cyfrwy at SH696136; five Buzzards were seen overall, with a male displaying in the cwm around Llyn Cau; a Kestrel was recorded near Mynydd Moel hovering above the heathland, where a Peregrine Falcon flew eastwards with prey in its talon. Two Red Kites and an Osprey flew overhead to the west over Llyn Cau during the second transect on 26th June.

Birds on Llyn Gafr: a pair of Common Sandpipers were present on this small lake (point 6), alarm calling and likely to be nesting, with a female Goosander feeding in its shallow waters and resting on a small island on its eastern shore. A pair of Canada Geese with two chicks were also present here.

Vegetation

It was clear the lack of trampling on the path had led to a significant growth of vegetation and plants between the cracks in the rocks and beside the track. Foxgloves, bracken and other small herbaceous plants were up to knee height in the middle of the path in some areas, and a diverse selection of flowering plants were noted too, including heath bedstraw and tormentil. The path through the forest from Minffordd towards Cwm Cau was obscured in some sections by dense growths of bracken and brambles (see images below). Even along the more exposed upland sections of the summit ridge, the pathways still noticeably vegetated and barely perceptible in places, with thick mats of grass and rushes obscuring the normally well-trodden paths.

On the descent to Llyn y Gader on the steep, scree path (5), several Starry Saxifrage flowers and lush patches of Parsley Ferns were growing in the cracks and crevices along the path. It's likely that trampling under usual usage would not permit these to flower or flourish in these locations.

The upland assemblage of flora along the ridge east of the summit towards Mynydd Moel was highly diverse, with Heath Bedstraw,

1. xx
2. xx



See 'Table 10: Results of plant survey along the Pony Path on the lower slopes of Cader Idris' on page 62



xxx

See 'Table 11: Results from the litter survey along the two main pathways over Cader Idris' on page 63

See 'Table 12: Other sightings during the surveys on Cader Idris' on page 63

Crowberry, Stagshorn and Alpine Clubmoss and Cowberry amongst other herbaceous plants. Some of these were growing very close to the man pathway, vulnerable to trampling if people wonder off the usually well-defined path. It may be that the difficulty in seeing the path in some of this section will increase the trampling across a broader area of these sections once this footpath is opened up to the public again.

Hand in hand with the reduced trampling along pathways was a noticeable lack of trampling in areas that would usually be popular gathering spots, such as around the edge of Llyn Cau and near the river where the two paths meet above the forest at SH727121. In this latter place, Bog Asphodel flowers and Heath Spotted Orchids were growing along a path which usually would be trampled with people walking along the river side.

As an example of the remarkable plant diversity flourishing along the path in some areas, below are the results from one species list count along 200 metres of the lower reaches of the Pony Path.

Litter

It was a remarkably good site for the lack of litter. Just five litter items were found along the two main footpaths walked over Cader, including a plastic cup, a plastic bottle and a sweet wrapper on the Pony path, and a glove and plastic bottle cap on the Minffordd Path. There was no sign of litter around the popular gathering points such as the edge of Llyn Cau or the summit of Cader, which is surprising considering the amount of litter that has been found (even during the midst of lockdown) at the other popular mountain sites in North Wales.

Other sightings

A selection of insects were recorded particularly during the second transect, which are included in the tale below. Perhaps most noteworthy was a Hummingbird Hawkmoth (*Macroglossum stellatarum*) which whizzed across the ridge of Craig Cau on its journey north – a migrating insect capable of impressive distances on its rapid wings.

Grazing levels

Sheep grazing was present in the area on approach to the ridge along the Pony Path, although in low densities that permitted a verdant mix of flowering grasses, heather, bilberry and some wildflowers to be flourishing. Heavier densities of sheep grazing were noticeable on the upper areas of the mountain, particularly the slopes on its south-west flanks along the Pony Path and along the ridge to Mynydd Moel. Llyn

Cau was noticeably absent of sheep and supported one of the highest densities of songbirds amidst the mix of habitats along the river which runs down into the woodland around Minffordd.

People

There were no people seen during the surveys on Cader Idris.



Stagshorn Clubmoss (*Lycopodium clavatum*) and Alpine Clubmoss (*Diphasiastrum alpinum*) along the ridge between Cader and Mynydd Moel.



Bog Asphodel (*Narthecium ossifragum*) flowering beside the river in Nant Cader.

- 1. Foxgloves (*Digitalis purpurea*) beneath a lime tree along the Minffordd path
- 2. Looking north over Llyn y Gader from the ridge on Cader Idris



Table 9: Results from the bird surveys along the two routes on Cader Idris

Site name: Cader Idris

Survey type: Breeding birds

Surveyors: Ben Porter and Jo Porter

Survey dates: 20 June 2020; 26 June 2020

Species	Scientific name	T1	T2	Total
Meadow Pipit	Anthus pratensis	78	98	176
Northern Wheatear	Oenanthe Oenanthe	10	10	20
Wren	Troglodytes troglodytes	19	32	50
Stonechat	Saxicola torquata	7	16	23
Skylark	Alauda arvensis	9	2	11
Raven	Corvus corax	3	4	7
Herring Gull	Larus argentatus	3	2	5
Common Sandpiper	Actitis hypoleucos	2	0	2
Grey Wagtail	Motacilla cinerea	3	2	5
Ring Ouzel	Turdus torquatus	1	4	5
Carrion Crow	Corvus corone	6	6	12
Goosander	Mergus merganser	1	0	1
Buzzard	Buteo buteo	1	4	5
Canada Goose	Branta canadensis	4	8	12
Robin	Erithacus rubecula	3	5	8
Willow Warbler	Phylloscopus trochilus	2	3	5
Merlin	Falco columbarius	1	0	1
Grasshopper Warbler	Locustella naevia	1	0	1
Whinchat	Saxicola rubetra	1	0	1
Blackcap	Sylvia atricapilla	3	4	7
Blackbird	Turdus merula	2	2	4
Treecreeper	Certhia familiaris	1	1	2
Nuthatch	Sitta europea	2	5	7
Song Thrush	Turdus philomelos	1	0	1
Coal Tit	Parus ater	2	2	4
Blue Tit	Cyanistes caeruleus	3	13	16
Chaffinch	Fringilla coelebs	3	0	3
Great Tit	Parus major	3	2	5
Tree Pipit	Anthus trivialis	3	1	4

Species	Scientific name	T1	T2	Total
Dunnock	Prunella modularis	4	1	5
Mistle Thrush	Turdus viscivorus	1	0	1
Lesser Redpoll	Carduelis cabaret	1	0	1
Common Redstart	Phoenicurus phoenicurus	4	0	4
Common Whitethroat	Sylvia communis	1	0	1
Linnet	Carduelis cannabina	2	0	2
Pied Flycatcher	Ficedula hypoleuca	1	1	2
Chiffchaff	Phylloscopus collybita	0	3	3
Goldcrest	Regulus regulus	0	4	4
Jay	Garulus glandarulus	0	1	1
Siskin	Spinus spinus	0	2	2
Common Swift	Apus apus	0	1	1
Kestrel	Falco tinnunculus	0	1	1
Red Kite	Milvus milvus	0	2	2
Peregrine	Falco peregrinus	0	1	1
Osprey	Pandion haliaetus	0	1	1
Swallow	Hirundo rustica	0	3	3
House Martin	Delichon urbica	0	8	8
Wood Warbler	Phylloscopus sibilatrix	0	5	5
Spotted Flycatcher	Muscicapa striata	0	1	1
Total number of species		36	37	49
Total number		192	261	453

T1: Pony path**T2: Minffordd path**

Table 10: Results of plant survey along the Pony Path on the lower slopes of Cader Idris

Site name: Cader Idris (Start SH698150; End SH696145; Transect length ~200m)

Type of survey: Path vegetation survey

Surveyor: Ben Porter

Survey date: 20 June 2020

Species	Scientific name
Wild Thyme	Thymus polytrichus
Tormentil	Potentilla erecta
Barren Strawberry	Potentilla sterilis
Self-heal	Prunella vulgaris
Foxglove	Digitalis purpurea
Bracken	Pteridium aquilinum
Lady's Mantle	Alchemilla mollis
Lady fern	Athyrium filix-femina
Lousewort	Pedicularis sylvatica
Marsh Thistle	Cirsium palustre
Common Bent grass	Agrostis capillaris
Deer Grass	Muhlenbergia rigens
Annual Meadow Grass	Poa annua
Meadow Buttercup	Ranunculus acris
Star Sedge	Carex echinata
Mouse ear sp.	Hyracium polucella?
Dog Violet sp	Viola sp.
Yarrow	Achillea millefolium
Bird's Foot Trefoil	Lotus corniculatus
White Clover	Trifolium repens
Heath Bedstraw	Galium saxatile
Pearlwort	Sagina procumbens
Red Fescue	Festuca rubra
Lemon-scented Male Fern	Oreopteris imbosperma
Crested Dogstail	Cynosurus cristatus
Hard Fern	Blechnum spicant
Total number of species	26

Foxglove – Flowering spires growing up in the middle of the path; **Bracken** – Fronds covering the pathway in some places.

Table 11: Results from the litter survey along the two main pathways over Cader Idris

Site name: Cader Idris

Survey type: Litter survey

Surveyors: Ben Porter and Jo Porter

Survey date: 20 June 2020; 26 June 2020

Litter type	T1	T2	Total
Plastic cup	1	0	1
Plastic drinks bottle	1	0	1
Sweets wrapper	1	0	1
Glove	0	1	1
Plastic bottle cap	0	1	1
Total number of litter types	3	2	5
Total number of litter items	3	2	5

T1: Pony path

T2: Minffordd path

Table 12: Other sightings during the surveys on Cader Idris

Site name: Cader Idris

Survey type: General sightings

Surveyor: Ben Porter and Jo Porter

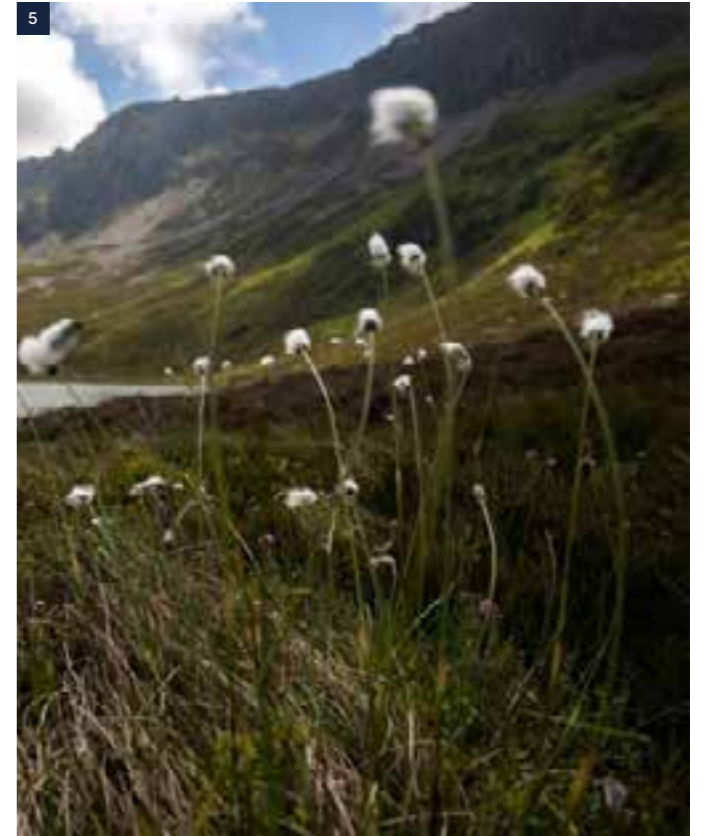
Survey dates: 20 June 2020; 26 June 2020

Species	Scientific name	Date	Number
Small Tortoiseshell	Aglais urticae	26/06	5
Silver Y	Autographa gamma	26/06	1
Hummingbird Hawkmoth	Macroglossum stellatarum	26/06	1
Small Heath	Coenonympha pamphilus	26/06	7
Dark Green Fritillary	Speyeria aglaja	26/06	1

Small Tortoiseshell – Minffordd path and circuit over Cader Idris; **Silver Y** – Minffordd path and circuit over Cader Idris; **Hummingbird Hawkmoth** – Craig Cau; **Small Heath** – Minffordd path and circuit over Cader Idris; **Dark Green Fritillary** – Along the road near Ty Nant.



1. Whinchat on lower slopes of Cader Idris along the Pony Path
 2. A vivid mix of bryophytes in a wet flush along the Foxe's path
 3. Bog Asphodel flowers
 4. Alpine Clubmoss and Crowberry
 5. Cottongrass above Llyn Gafr
 6. A Meadow pipit on Craig Cau





Fixed-point pathway images to record vegetation condition

- 1. Beginning of Pony Path (P1)
- 2. Ascending towards Cader along the Pony Path (P2)
- 3. Mid-way along the Pony Path (P3)
- 4. On the Pony Path along the ridge near Cyfrwy (P4)
- 5. At base of scree descent off Cader near Llyn y Gader (P5)
- 6. At beginning of Minffordd path in the woodland (P6)





7. Overgrown Minffordd path in woodland (P7)
 8. Leaving the woodland on the Minffordd path in approach to Nant y Gader (P8)
 9. On Minffordd path in Nant y Gader (P9)
 10. Along Minffordd path to Llyn Cau (P10)
 11. Path approaching Llyn Cau (P11)
 12. Minffordd path on approach to Craig Cau (P12)



13



13. Summit of Craig Cau (P13)
14. Looking towards Craig Cau from the ascent to the summit of Cader (P14)
15. Just north east of the summit (P15)
16. Minffordd Path between Cader summit and Mynydd Moel (P16)
17. On descent from Mynydd Moel towards Nant y Gader (P17)

14



15



16



17





Survey Site 4

Y Carneddau: Yr Elen, Carnedd Llewelyn and Moel Grach

Site	Y Carneddau: Yr Elen, Carnedd Llewelyn and Moel Grach
Survey date	15 June 2020
Transect routes	Circular loop on main footpath from Bethesda

Just one survey was carried out in the Carneddau (on 15 June 2020), the transect beginning from Bethesda along the Afon Llafar and ascending over Foel Ganol and Yr Elen to the summit of Carnedd Llewelyn. The route then followed the main ridge path to Foel Grach before descending into the valley along the Afon Wen and contouring along the mountainside above the Afon Caseg back to Bethesda. The visibility along the summit plateau was very poor on the day of the survey due to thickening mist, and a large thundestorm moving in at midday meant the survey had to be cut short and not all areas planned to be surveyed were covered.

Surveys carried out during this visit included any birdlife (especially breeding bird activity), general vegetation condition along the transect route, any signs of mammal activity and litter abundance along the footpath.

Weather conditions: on 15 June survey began clear and sunny (10% cloud cover), with some mist patches and low cloud on the mountain tops and warm temperatures (16°C). By midday a large thunder storm had

developed to the north and moved south onto the summit ridge, releasing torrential rain, lightning and thunder for the remainder of the survey.

Below is a map of the route taken for the transect and points referred to in the results section below.

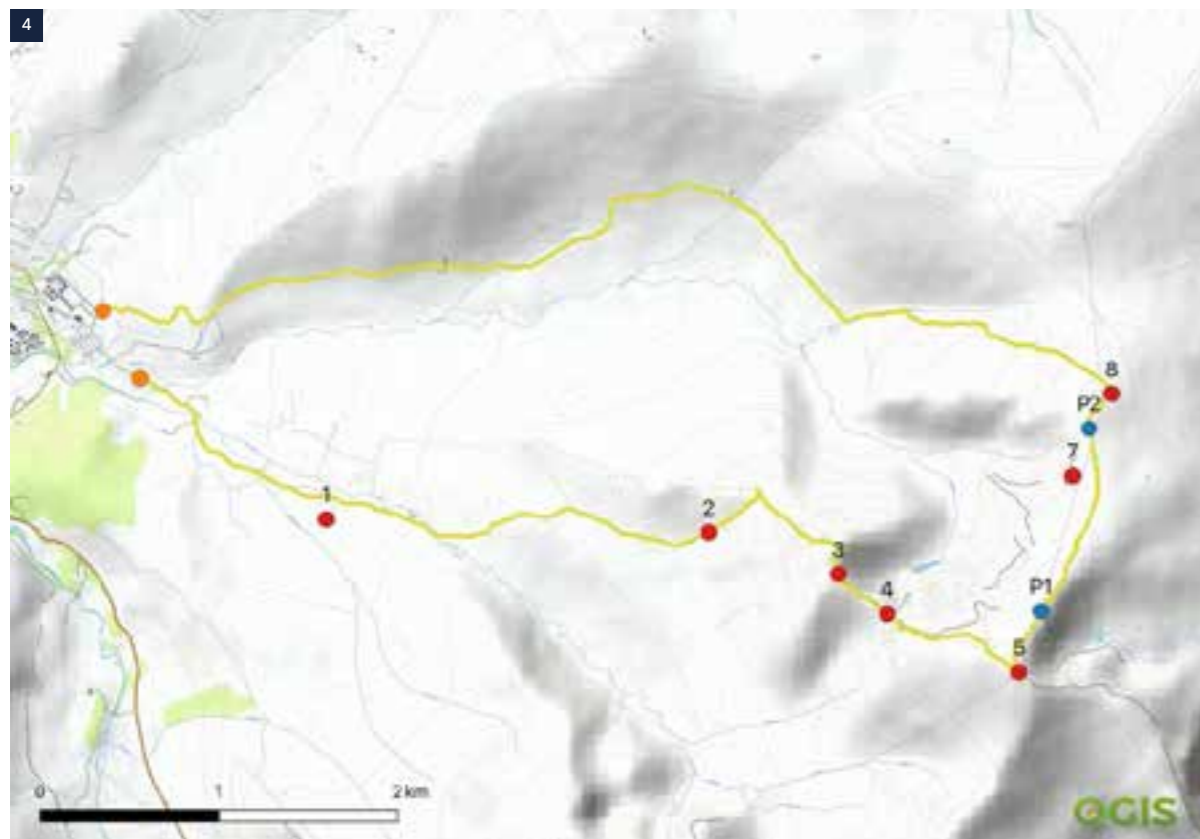


Figure 4. A map of the Carneddau survey area showing the transect route (yellow line). Orange points are the start and end points of the survey, red points are target notes referred to in the results summary below and blue points are fixed-point photography sites mainly targeted along pathways.

See 'Table 13: Results of the bird survey on the Carneddau' on page 79

Survey results

A breakdown of the survey results for this site are given below, referencing the map above for location-specific notes using numbers in parentheses.

Birdlife

A total of 22 bird species were recorded during the transect over Carnedd Llewelyn and Foel Grach on 15 June, with an impressive 310 birds recorded overall. By far the most numerous species were Meadow pipits, with a tally of 131 including many fledged young and singing males on territory. Northern Wheatears (54 in total) and Skylarks (40 overall) were recorded in their largest numbers of any of the survey sites covered thus far in the survey. A result most likely reflecting the differences in vegetation and habitat compared to the other sites, with far more open grassland than the mosaic of heather, bilberry and scrub present at other sites.

The primary target for covering the Carneddau during these surveys was to assess the summit plateau area between Carnedd Llewelyn and Foel Grach for upland breeding waders such as Dunlin and Dotterel; species which occasionally present here which are very prone to disturbance from people. We were unable to find any evidence of breeding waders during this survey visit, although misty conditions descended during our time on the summit plateau, and we were also forced to return off this area earlier than anticipated due to an approaching thunderstorm.

Perhaps the most noteworthy sighting of the survey was a singing male Ring Ouzel at SH686654 (point 7 on figure 4), just to the west of Foel Grach. There was not as much evidence to suggest songbirds such as Meadow pipits were nesting close to the main footpath, although this was partly a consequence of the 'main' footpath being far less defined than those in more popular areas such as Yr Wyddfa and Cwm Idwal.

Vegetation

The footpath was highly vegetated in many sections of the transect, being particularly noticeable along the ridge between Carnedd Llewelyn and Foel Grach, where the path is usually well trodden and easily defined. This thatching of grass also included bilberry and dwarf willow in some sites, often just on the edge of the pathway. Areas where dwarf willow

was particularly abundant included just east of the summit of Yr Elen at SH673649 (point 3), just north of the summit of Carnedd Llewelyn at SH683643 (point 5) and all around the summit area of Foel Grach at SH688658 (point 8).

There were several Starry saxifrage plants and lush Parsley fern plants along the edges of the rocky path ascending Yr Elen from Foel Ganol (point 2 on figure 4)), some of which were right in the centre of the path. Whether the delicate flowers of the saxifrage would normally flourish here under normal levels of path usage is difficult to say.

Sbwriel

There was a distinct lack of litter during the survey of the Carneddau, with just two pieces found along the transect.

Canfyddiadau Eraill

A variety of other sightings were recorded during the survey (see table 15 below), largely of insects during the earlier (and warmer) half of the survey before the onslaught of the thunder storms. There was an abundance of Garden grass-veneer (*Chrysoteuchia culmella*) micro moths in the grassland area beside the path near the Afon Llafar (point 1 on figure 4), along with smaller numbers of Small heath butterflies (*Coenonympha pamphilus*) and five Red Admiral butterflies (*Vanessa atalanta*) flying north.

A single Fox scat was found on the summit ridge at SH674648 (point 4 on figure 4). Also on the summit ridge were a handful of insects, including a Heath bumblebee (*Bombus jonellus*), a 7-spot Ladybird (*Coccinella septempunctata*) and a Marmalade Hoverfly (*Episyrphus balteatus*).

Lefelau Pori

There was a much higher density of sheep grazing noted in these areas than the other mountainous sites covered during the survey. The habitat throughout the transect route remained largely grassland and some moss communities on the mountain tops, but there was virtually no heather, bilberry or gorse communities noted. A small number of Carneddau ponies were recorded (15-20) near Yr Elen, along with some cattle at the very beginning of the survey along the Afon Llafar.

Pobl

There were three people seen during the entire survey, in the cwm near Afon Elen on our return. There was trace of recent footprints along the path and a mountainbike track near the summit of Carnedd Llewelyn.

See 'Table 14: Litter survey results for the Carneddau transect' on page 80

See 'Table 15: Other sightings and vegetation records from the Carneddau survey' on page 81

1 and 2. Starry saxifrage (*Saxifraga stellaris*) on the footpath ascending Yr Elen.
3. Dwarf Willow (*Salix herbacea*) growing on the top of some boulders between Carnedd Llewelyn and Foel Grach.





Looking towards Carnedd Llewelyn from Yr Elen.

Table 13: Results of the bird survey on the Carneddau

Site name: Carneddau
 Survey type: Breeding birds
 Surveyors: Ben Porter and Steve Porter
 Survey dates: 15 June 2020

Species	Scientific name	Nifer
Meadow Pipit	Anthus pratensis	131
Northern Wheatear	Oenanthe Oenanthe	54
Wren	Troglodytes troglodytes	14
Stonechat	Saxicola torquata	5
Skylark	Alauda arvensis	40
Raven	Corus corax	5
Pied Wagtail	Motacilla alba yarrellii	1
Herring Gull	Larus argentatus	4
Grey Wagtail	Motacilla cinerea	5
Ring Ouzel	Turdus torquatus	1
Carrion Crow	Corvus corone	10
Cuckoo	Cuculus canorus	1
Red Kite	Milvus milvus	2
Great Tit	Parus major	1
Chaffinch	Fringila coelebs	1
Dunnock	Prunella modularis	1
Reed Bunting	Emberiza schoeniclus	1
Rook	Corvus frugilegus	4
Blue Tit	Cyanistes caeruleus	1
Common Swift	Apus apus	8
Linnet	Carduelis cannabina	13
Mistle Thrush	Turdus viscivorus	7
Cyfanswm nifer y rhywogaethau		25
Cyfanswm niferoedd		230

Meadow pipit – Fledged young and singing males; **Northern Wheatear** – Breeding pairs with fledged young, singing males; **Wren** – Singing males; **Stonechat** – Pair with fledged young; **Skylark** – Singing males; **Grey Wagtail** – Pairs along Afon Llafar, singing male; **Ring ouzel** – One singing male; **Cuckoo** – One male singing; **Reed Bunting** – Singing male; **Linnet** – Pairs with fledged young; **Mistle Thrush** – Pair with fledged young.

Table 14: Litter survey results for the Carneddau transect

Site name: Carneddau
 Survey type: Litter survey
 Surveyors: Ben Porter and Steve Porter
 Survey dates: 15 June 2020

Litter type	Number
Plastic wrapper	1
Trekking pole end	1
Total number of litter types	2
Total number of litter items	2

Table 15: Other sightings and vegetation records from the Carneddau survey

Site Name: Carneddau (Yr Elen, Carnedd Llewelyn and Foel Grach)
 Survey type: General sightings
 Surveyors: Ben Porter and Steve Porter
 Survey date: 15 June 2020

Species	Scientific name	Number
Garden Grass Veneer	Chrysoteuchia culmella	Hundreds
Small Heath	Coenonympha pamphilus	>20
Red Admiral	Macroglossum stellatarum	5
Starry Saxifrage	Saxifraga stellaris	5
Dwarf Willow (1)	Salix herbacea	Many
Red Fox scat	Vulpes vulpes	1
Heath Bumblebee	Bombus jonellus	1
Marmalade Hoverfly	Episyrphus balteatus	1
Dwarf Willow (2)	Salix herbacea	Many
7-spot Ladybird	Coccinella septempunctata	1
Dwarf Willow (3)	Salix herbacea	Many

Garden grass veneer – Many hundreds (if not thousands) in the grassland at beginning of the transect near Afon Llafar; **Small Heath** – Beginning the transect in the grassland along the Afon Llafar; **Red admiral** – flying north over Cwm Pen Llafar; **Starry Saxifrage** – between Foel Ganol and Yr Elen summits; **Dwarf Willow (1)** – Between yr Elen and Carnedd Llewelyn; **Red Fox scat** – Between yr Elen and Carnedd Llewelyn on the footpath; **Heath Bumblebee** – Between yr Elen and Carnedd Llewelyn; **Marmalade Hoverfly** – Between yr Elen and Carnedd Llewelyn; **Dwarf Willow (2)** – 10 metres north of Carnedd Llewelyn summit; **7-spot Ladybird** – near the summit of Carnedd Llewelyn; **Helygen Fach (3)** – all around the summit area of Foel Grach



Fixed-point pathway images to record vegetation condition

- 1. Looking towards the summit of Carnedd Llewelyn on the summit plateau (P1)
- 2. Approach to Foel Grach (P2)



Summary of upland surveys

An overview of the main take-aways from the survey work in the upland areas of Snowdonia

Grazing levels and human disturbance

It was clear during the surveys in these upland areas that the impacts of visitors and human usage of the sites is very much secondary to that of the impacts of stock densities and grazing levels. However, there were certainly some impacts attributed to the lack of people in these areas over the 3-month lockdown period, with some of the main effects summarised below.

Bird abundance and nests along pathways

One of the most obvious observations during the surveys in each of the areas was the abundance of species like Meadow Pipits and Wheatears along the main pathways. Several species had taken advantage of the lack of disturbance along these normally busy paths to nest in the grass or rocks right beside the paths, including other birds such as pied and Grey Wagtails. Birds normally averse to the presence of people were observed in close proximity to the paths too, with Common Sandpipers nesting close to the main path along Llyn Llydaw on Yr Wyddfa, and a Ring Ouzel pair nesting near to the path above Cwm Idwal. This breeding activity could have been disrupted had lockdown been eased midway through the spring, but thankfully with these areas opening up in early July, it is likely most species will have finished nesting by the time human traffic increases again.

Breeding birds around small upland lakes

Lake edges such as along Llyn Idwal and Llyn Llydaw are usually quite popular places for people to gather and spend time during their visits to

these areas. Species which are quite sensitive to human presence would therefore often choose to nest in places that suffer the least amount of disturbance. During these surveys, we found at least three pairs of common sandpipers on Llyn Llydaw, another three pairs (at least) on Llyn Idwal, and a pair of Great Crested Grebes nesting on Llyn Idwal's southern end. These species may well have benefitted from the lack of disturbance here. On the other hand, Herring Gulls were virtually absent from their usual nesting colony on Glaslyn (Yr Wyddfa), which usually holds a small breeding population of 5-10 pairs. Herring Gulls usually subsist on the food waste and discards from visitors on Yr Wyddfa summit (and café area) and around the lakes. A lack of visitors and associated 'free food' has likely impacted their ability to exist in this area this season.

Vegetation growth along main pathways and popular gathering areas

Many of the well-established footpaths were highly vegetated, with grasses, flowering plants and other herbaceous vegetation growing up between the cracks in the stonework or encroaching from the sides to obscure the path. A remarkable diversity of plantlife was recorded along some stretches of usually well-trodden paths, with the likes of Heath Bedstraw and Wild Thyme particularly abundant along the Miner's track (Yr Wyddfa) and the path around Cwm Idwal. Scarcer and quite delicate species such as Starry Saxifrage, Mossy Saxifrage and Dwarf Willows had grown along the paths in some areas too (for example, Dwarf Willows on the approach to Y Garn above Cwm Idwal), which would normally be suppressed by trampling. It was noticeable that areas with less pressure from grazing livestock showed a more dramatic 'wilding' of the pathways, with areas containing larger densities of sheep showing much less of a change in pathway vegetation to usual. The lower section of the Minffordd path on Cader Idris, for example, was almost entirely obscured in some places within the woodland, with bracken, bramble and foxgloves having taken over the usually well-used pathway!

In parallel to these observations, popular gathering spots such as summits also had a noticeable abundance of vegetation in some areas too. The cairn and area surrounding Yr Wyddfa summit was perhaps most dramatic, with Mossy Saxifrage and flowering grasses flourishing in nooks and crannies in a 10-metre radius. Summit tops which are almost entirely rock, on the other hand, showed little obvious change to normal conditions, such as the peaks of Glyder Fach and Cader Idris.

Stillness and quiet atmosphere

Whilst difficult to quantify and measure, the peace and lack of noise in each of these sites was very noticeable during each of the surveys. This was helped by the calm conditions chosen for the surveys themselves, but it was certainly an almost surreal experience to witness the absolute silence that pervaded the landscape in most of these sites, save for the sound of birdsong, trickling water and the odd bleating sheep (or goat!).

Lack of litter

Whilst volunteers and some members of the public make a concerted effort to tidy up litter along pathways when they are in use, the popular routes in areas like Yr Wyddfa almost always contain a certain amount of waste discarded either accidentally or deliberately by the more irresponsible visitors. During these surveys, however, it was highly evident how little was present along paths and gathering spots, save for the more popular sites where people have still been visiting despite lockdown measures. On Yr Wyddfa, for instance, we recorded 75 items of 22 different types in total – a surprising amount considering the absence of people for so long. Contrast this to eleven pieces of litter around Cwm Idwal, five on the entirety of Cader Idris, and just two on the Carneddau. It would be hoped that educating visitors and engendering a respect for these amazing sites would prevent a return to the levels of litter that sometimes occur when these areas are open. Perhaps encountering the paths so clear of litter might help to encourage those visiting to keep it that way as paths open up to the public again?

Lack of Red Fox signs

It was half expected that there might be more evidence that mammals such as red foxes might have been making use of the pathways with the absence of people. However, less than ten fox scats were found across all of these sites during the entire survey and across all the main pathways surveyed, which indicates that perhaps they weren't being used as extensively as anticipated. Anecdotal evidence from a path worker on Yr Wyddfa eluded to a whole family of Red Foxes on the Miner's track at one point during lockdown, however. It might be that the absence of food and scraps from visitors meant that there has been less scavenging resources around to tempt red foxes onto the pathways, and so in actual fact perhaps more foxes visit these popular sites when they are in their usual levels of usage?



Survey Site 5

Ceunant Llennyrch National Nature Reserve

Site	Ceunant Llennyrch National Nature Reserve
Survey date	12 June 2020
Transect routes	Circular loop on main footpath past Rheadr Du and around Coed Nyth-y-Frân

The survey of Ceunant Llennyrch woodland and river gorge began at the gate along the road where the main footpath begins at grid reference SH665392. The first transect (brown line) covered the main way-marked circular route from here, through the woodland to Rheadr Du, and back to the start point. The second transect route (orange line) began in the river gorge and followed a way-marked circular trail through the Coed Nyth-y-Frân woodland area to the west of the Afon Prysor. Both transects were carried out on 12 June 2020.

The survey involved recording any birdlife seen or heard (especially evidence of breeding behaviour), any signs of mammal activity, litter abundance and vegetation condition along pathways and near popular gathering places.

Weather conditions: there was low cloud to begin (100%) which cleared to 40% cloud cover by 1100, with a 15mph north-east wind and mild temperatures (18°C).

Below is a map of the survey routes taken through Ceunant Llennyrch and specific target notes referred to in the results section.

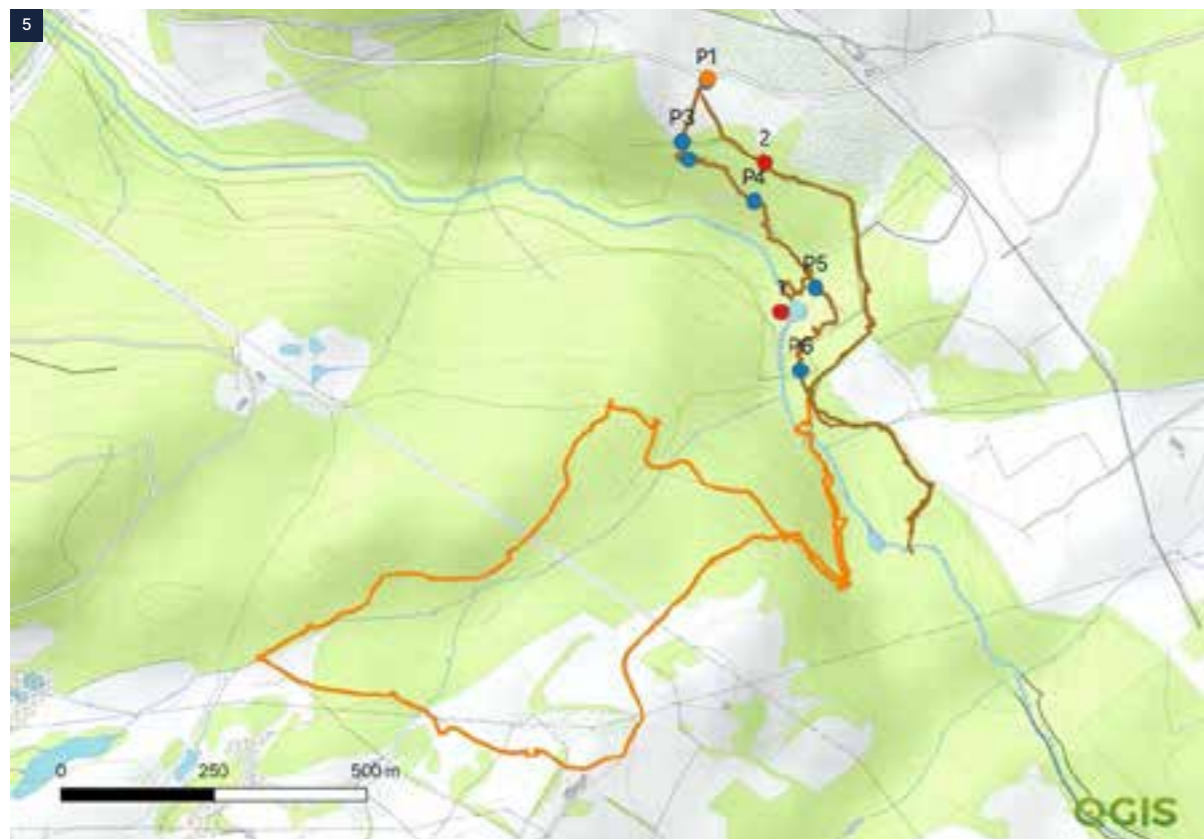


Figure 5. A map of the Ceunant Llennyrch survey area showing the two transect routes carried out on 12 June 2020: the brown line shows the circular route along the main footpath which passes the main waterfall Rheadr Du; the orange line shows the circular route taken through the Coed Nyth-y-Frân woodland area. Orange points are the start and end points of the survey, red points are target notes referred to in the results summary below and blue points are fixed-point photography sites mainly targeted along pathways (see section below).

See 'Table 16: Results of the bird survey in Ceunant Llennyrch' on page 97

Survey results

A breakdown of the survey results for this site are given below, referencing the map above for location-specific notes using numbers in parentheses.

Birdlife

A total of 24 bird species were recorded overall during the survey, with 24 species along the circuit near Rheadr Du and 22 species on the wider transect through Coed Nyth-y-Frân. Wrens, Blue Tits and Pied Flycatchers were the most numerous species recorded, with a total of 75, 47 and 33 respectively. A selection of scarcer species typical of western Oak woodland were seen during the survey, including five Common Redstarts, three Wood Warblers and the aforementioned abundance of Pied Flycatchers. A flock of five Crossbills flying over the site towards the coniferous woodland to the north was also a noteworthy record. It was difficult to detect specific species or instances which may have been influenced by the quieter usage of the site during the previous few months of lockdown. However, a pair of Grey Wagtails appeared to be nesting in the gorge just upstream from Rheadr Du, a place usually visited perhaps the most by people coming to the site, and a fledgling Dipper was seen a little further upstream than here too. Whether this bird had fledged from a nest nearby or further afield is difficult to say.

Vegetation

The pathways were overgrown in some areas, particularly with species such as bracken encroaching from the edges and obscuring the path, although for the most part it seemed like a certain level of human footfall had kept them clear and in use. There were one or two viewpoint areas, such as in the image below, where bilberry and some grass species were growing in areas usually trampled by people.

Perhaps the most delicate habitat that is usually damaged by people visiting the site is the moss and fern communities on boulders and rock ledges in the gorge itself. We searched the area surrounding the popular waterfall Rheadr Du (point 1 on the map) and took several images to allow for future comparison. There was a site here where it looked like people usually scramble over boulders and tree roots to climb onto the lip of Rheadr Du. Ferns, grasses and mosses seemed to be making an attempt to grow back, but it was clear that more than two months without disturbance would be needed for some of these damaged areas to fully recover from this usage.

It was disappointing to discover one area on the edge of the site (point 2 on the map) where a number of motorbikes seem to have been regularly using the earth bank as a play area. A criss-cross of tyre tracks covered the side of the earth bank beneath the birch trees, and had clearly caused a lot of damage to the delicate understory community of mosses and other plant life. Bare soil and rock were exposed in many areas, with the overall size of this damaged area being around 50m squared.

Litter

A total of seven litter pieces of five different types were found during the survey, with all but one of these being on the shingle beach near Rheadr Du (point 1 on the map). It seemed that a small picnic or barbeque had been had on the beach and the waste simply discarded afterwards. Otherwise just one plastic bottle was found along the rest of the footpaths.

Other sightings

Several Badger tracks criss-crossed the main footpath within the woodland, although there were no visible setts nearby the main footpaths. A Longhorn beetle later discovered to be *Saperda scalaris* was found on the banks of the Afon Prysor at SH667384. This is a very scarce beetle in the UK with a patchy distribution, and is limited to good quality ancient woodland sites such as Coed Llennyrch, and so it was a delight to find and a good record for this site.

People

There were three people walking along the main circular footpath through the woods on the survey visit.

See 'Table 17: Results of litter survey in Ceunant Llennyrch' on page 99

1. Buff-tailed Bumblebee (*Bombus terrestris*) on Common Cow-wheat (*Melampyrum pratense*)
2. One of a number of viewpoint sites usually kept open by use by people which was beginning to vegetate over.
3. xx



1. The bank on the south side of Rheadr Du, where tree roots and moss-covered boulders have clearly been damaged in the past and slow regeneration has not yet led to a full recovery of the plant community
2. Looking over Rheadr Du from above the falls.



3 and 4. Motorbike damage to an area of the woodland near to the entrance to the main woodland itself at SH666391.



A fern in the Afon Prysor gorge.

**Table 16: Results of the bird survey in Ceunant Llennyrch**

Site name: Ceunant Llennyrch
 Survey type: Breeding birds
 Surveyors: Ben Porter and Jo Porter
 Survey date: 12 June 2020

Species	Scientific name	T1	T2	Total
Tree Pipit	Anthus trivialis	3	0	3
Song Thrush	Tudus philomelos	11	4	15
Wren	Troglodytes troglodytes	53	22	75
Blue Tit	Cyanistes caeruleus	24	23	47
Pied Flycatcher	Ficedula hypoleuca	14	19	33
Blackbird	Turdus merula	12	6	18
Herring Gull	Larus argentatus	1	0	1
Willow Warbler	Phylloscopus trochilus	10	8	18
Robin	Erithacus rubecula	15	6	21
Nuthatch	Sitta europea	9	14	23
Siskin	Carduelis spinus	3	4	7
Goldcrest	Regulus regulus	3	5	8
Chiffchaff	Phylloscopus collybita	4		4
Treecreeper	Certhia familiaris	7	2	9
Blackcap	Sylvia atricapilla	15	6	21
Raven	Corvus corax	1	0	1
Bullfinch	Pyrrhula pyrrhula	1	0	1
Grey Wagtail	Motacilla cinerea	2	0	2
Dipper	Cinclus cinclus	1	0	1
Spotted Flycatcher	Muscicapa striata	1	0	1
Mistle Thrush	Turdus viscivorus	1	0	1
Great Spotted Woodpecker	Dendrocopos major	1	6	7
Chaffinch	Fringilla coelebs	0	5	5
Long-tailed Tit	Aegithalus caudatus	6	11	17
Swallow	Hirundo rustica	0	1	1
Pied Wagtail	Motacilla alba yaerrellii	0	2	2

Species	Scientific name	T1	T2	Total
Common Redstart	Phoenicurus phoenicurus	0	5	5
Coal Tit	Parus ater	0	3	3
Wood Warbler	Phylloscopus sibilatrix	0	3	3
Common Crossbill	Loxia curcirostra	0	5	5
Jay	Garulus glandarulus	1	0	1
Great Tit	Parus major	0	1	1
Total number of species		24	22	32
Total number		199	161	360

T1: Ceunant Llennyrch woodland and Rheadr Ddu

T2: Coed Nyth-y-Frân

Tree Pipit – Singing males and juvenile; **Song thrush** – Singing males; **Wren** – Fledged young, singing males; **Blue tit** – Fledged young and singing males; **Pied Flycatcher** – Singing males and pairs with fledged young; **Blackbird** – Fledged young and nesting pairs; **Willow Warbler** – Singing males; **Robin** – Fledged young, singing males; **Nuthatch** – Pairs and alarm calling; **Siskin** – Singing males; **Goldcrest** – Singing males; **Chiffchaff** – Singing males; **Treecreeper** – Singing males; **Grey Wagtail** – Pair nesting in gorge above Rheadr Du; **Dipper** – One fledged juvenile on the river above Rheadr Du; **Spotted Flycatcher** – One singing male; **Mistle Thrush** – One alarm calling and likely nesting; **Long-tailed Tit** – Fledged young; **Common Redstart** – Two pairs and fledged young; **Coal Tit** – Singing males; **Wood Warbler** – Singing males

Table 17: Results of litter survey in Ceunant Llennyrch

Site name: Ceunant Llennyrch

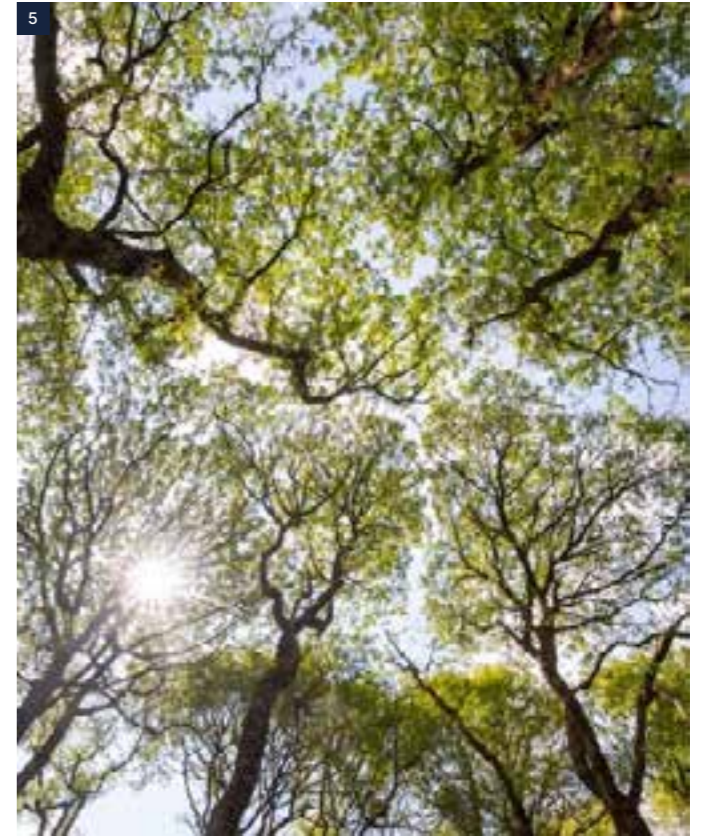
Survey type: Litter survey

Surveyors: Ben Porter and Jo Porter

Date of survey: 12 June 2020

Litter type	Number
Haribo sweet packet	1
Plastic bottle	1
Plastic sweet wrapper	2
Tin foil	1
Plastic straw	1
Plastic bottle	1
Total number of litter types	2
Total number of litter items	2

All litter items were seen on the pebbly beach next to Rheadr Du waterfall with the exception of the plastic bottle which was seen along the footpath.

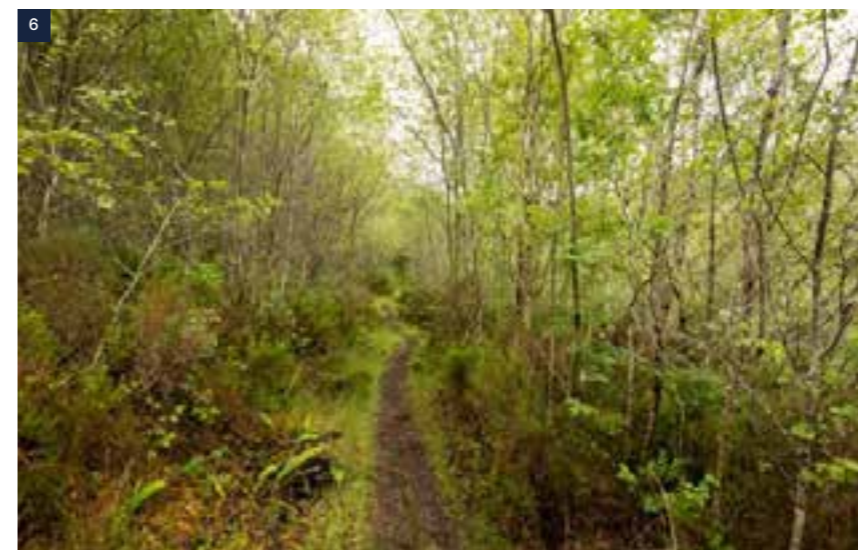


1. The Longhorn Beetle (*Saperda scalaris*) in Ceunant Llennyrch
 2. Common Redstart (*Phoenicurus phoenicurus*)
 3. Meadow pasture above Ceunant Llennyrch
 4. Pied Flycatcher (*Ficedula hypoleuca*)
 5. Ceunant Llennyrch woodland
 6. Ferns in the Ceunant Llennyrch gorge



Fixed-point pathway images to record vegetation condition

- 1. Entering the site (P1)
- 2. Looking back towards entrance at gate into woods (P2)
- 3. Ar hyd y llwybr drwy'r coed (P3)
- 4. Path through woods (P4)
- 5. View from the woods (P5)
- 6. Path through woods(P6)





Survey Site 6

Niwbwrch and Ynys Llanddwyn National Nature Reserve

Site	Niwbwrch and Ynys Llanddwyn National Nature Reserve
Survey date	17 June 2020
Transect routes	Llyn Parc Mawr Niwbwrch forest Ynys Llanddwyn

To cover the sizeable area that makes up Niwbwrch and the island of Ynys Llanddwyn, we focussed on four main sites to survey during the day's visit to the area (carried out on 17 June 2020). These comprised of Llyn Parc Mawr at the sites' northernmost boundary, the Dune Pool complex within the forest, Ynys Llanddwyn and its adjacent strip of coast near the car park, and then the Niwbwrch 'beach car park' at the south-east edge of the site (see the map in figure 6 below). Travelling between these sites by car on the forest tracks, we also stopped periodically to examine stretches of the forest track and sites within the forest for signs of change after the period of lessened visitation over the lockdown period.

The main surveys carried out during the visit to Niwbwrch included birdlife, vegetation condition, litter and any incidental sightings (for example insects or mammals). Thanks must be given to Nigel Brown for his immense help during this survey and in being able to contribute his botanical knowledge to indicate how areas had been influenced by the preceding months.

Weather conditions: there were overcast skies (100% cloud cover) to begin, with mild temperatures (17°C) and light winds (<5mph). Skies cleared by midday with warmer temperatures (20°C) before thunder showers arrived in the late afternoon.

See below for the survey route around Niwbwrch and the survey sites covered.



Figure 6: A map of the Niwbwrch survey area showing the route (red line) and survey sites (orange points) covered on the visit on 17 June 2020.

Figure 7: Maps showing each of the survey sites within Niwbwrch. The red line shows the route taken through the area; red points are target notes referred to in the results summary below and blue points are fixed-point photography sites mainly targeted along tracks and pathways (see section below).

Figure 7a: Llyn Parc Mawr location



Figure 7b: Niwbwrch 'dune pools' site

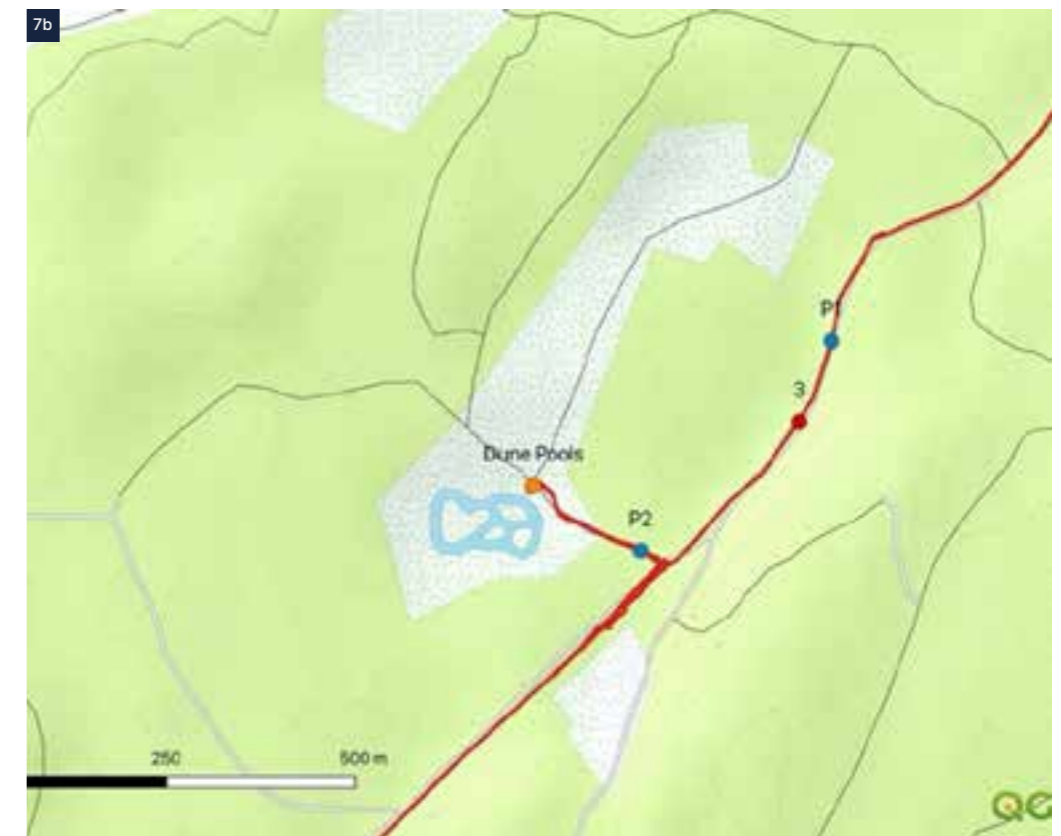




Figure 7c: Ynys Llanddwyn



Figure 7d: Niwbwrch beach car park location

1. Red-billed Chough (*Pyrrhocorax pyrrhocorax*) near Twr Mawr on Ynys Llanddwyn.
2. One of the two Choughs at the tip of Ynys Llanddwyn. This bird was colour-ringed but missing several rings, making its origin difficult to ascertain.
3. Kidney vetch (top) and Viper's Bugloss (bottom) along the 4x4 forest track between Llyn Parc Mawr and the dune pool area.



A mixture of Sea holly (*Eryngium maritimum*), Sandwort (*Hockenya peploides*) and Lyme grass (*Leymus arenarius*) in the strand line around the area just on entry to Ynys Llanddwyn at SH390633.



See 'Table 18: Results of the bird survey at Niwbwrch' on page 120

Survey results

The results for each of the surveys are given below, referencing the maps above for specific locations using numbers in parentheses.

Birdlife

A total of 323 birds of 42 species were recorded across all four sites around Niwbwrch, with 18 species at Llyn Parc Mawr, 11 species at the dune pool area, 25 species on Ynys Llanddwyn and three along the beach from the main car park. There were some excellent sightings during the day's survey, including a Wood Warbler singing at the entrance at Llyn Parc Mawr, a pair of Choughs around the tip of Ynys Llanddwyn, four Eiders in one of the bays of Ynys Llanddwyn and a Spotted Flycatcher at the south-east edge of the forest. Below is a summary of the main findings, taking specific note to those species that might have been impacted by the period of reduced human use and disturbance this spring. The overall results for this survey are given in table 18.

Wildfowl and waders around Llyn Parc Mawr (1): two female Tufted Ducks with broods of young were present on the lake at Llyn Parc Mawr, one female having four young ducklings, and another with nine ducklings plus a larger chick presumably from an earlier brood. Three adult Oystercatchers were present along the edge of the lake where a drier, sandy margin was exposed by the low level of the water. A fledged chick was excellent to see, very close from the main hide and confirmation that this sensitive wader had bred around the lake this year. There was no sign of Little Ringed Plovers around the lake's shores, as was hoped considering the appropriate habitat and reduced disturbance during the spring.

Wood Warbler near Llyn Parc Mawr (2): a singing male Wood Warbler near the entrance gate at Llyn Parc Mawr (grid ref SH412669) was a brilliant record for the area, being a scarce visitor to the forest. The presence of a singing male is a tantalising indication that birds could have bred here this spring, but further surveys would have been needed to confirm this.

Coastal birdlife around Ynys Llanddwyn: Oystercatchers were present in good numbers around the coast of Ynys Llanddwyn, with some 14 birds recorded that included at least five pairs. Many of these pairs alarm-called as we passed by, likely breeding along the stretch of coast, with a nest of three eggs found on the island's northern edge (10). This species

is sensitive to disturbance and may have taken advantage of a lack of people to nest in areas usually much less suitable due to the presence of visitors. Four Common Eiders were seen roosting on a rock on the island's south-east side (6), comprised of a female and three males. Whether these birds have attempted nesting here this year with a reduced number of people is difficult to say, but no ducklings or young were seen. A pair of Ringed Plovers were nesting on the small beach below Twr Bach at the southern tip of Ynys Llanddwyn (9). The birds appeared to be incubating eggs, although we weren't able to pinpoint the exact location of the nest. This site is very popular with people visiting Llanddwyn, and even as we were there a person cycling around the island had stopped for a rest right beside their nesting site, causing much disturbance to the birds. It is very unlikely these waders would have nested here without the reduced use of the area by people, and hopefully they were able to successfully fledge young before the visitor numbers to this area increased.

Choughs on Ynys Llanddwyn: a pair of Red-billed Choughs feeding on the cliffs below Twr Mawr on the tip of Ynys Llanddwyn (8) were brilliant to see. The birds flew off along the island's northern shore, settling on an area midway along near where a chough nest box has been placed in the past. However, their general behaviour did not indicate that they were attempting to breed, but it's certainly promising to see a pair at this site in suitable habitat to do so.

Vegetation

Niwbwrch is a site renowned UK-wide for its immense diversity of habitats and unique plant assemblages, and is a very important area for a host of rare and threatened species. During this survey we attempted to survey some of these important sites to assess how a period of lessened human usage might have impacted them. On the whole, the pathways and car parking areas were clearly far more lush than usual, supporting verdant mixes of plants and wildflowers in areas usually trampled or subject to car traffic and associated fumes. Away from the pathways, key sites for some of the scarcer species seemed less impacted, with the weather conditions during spring likely to have had a far greater impact in governing their condition. Below are a variety of the key observations made during the surveys around Niwbwrch, with a section later in the results presenting the fixed-point imagery to document habitat condition around car parks and along pathways.

Flowering plants along the forest tracks: there was a vivid assemblage of flowering plants flourishing along the edges of the 4x4 forest tracks, with species such as Kidney Vetch, spires of Viper's Bugloss and carpets of

Plantlife along the main footpath around Ynys Llanddwyn: Bloody Cranesbill (*Geranium sanguineum*); Buckhorn plantain (*Plantago coronopus*); and Broadleaf plantain (*Plantago major*).



See 'Table 19: Plant list for beach car park area in Niwbwrch' on page 122

1. Maiden Pink (*Dianthus deltoides*) on Ynys Llanddwyn
2. A closer view of the Ivy Broomrape (*Orbanche hederæ*) growing close to the footpath around Ynys Llanddwyn
3. Viper's Bugloss (*Echium vulgare*) in Niwbwrch main car park



Dune Pansy (*Viola tricolor* ssp. *curtisii*) in Niwbwrch beach car park

Black Medick in particular abundance. It was noticeable how verdant this plantlife was, although it is tricky to compare this to usual with a lack of a baseline.

Embryo dune and strand line vegetation near and around Ynys

Llanddwyn: with fewer people walking to and from Ynys Llanddwyn along the beach and nearby dunes, it was thought that some of the dune plants may have benefitted from this. We surveyed the stretch of beach between the car park to Ynys Llanddwyn (at grid ref SH395636) and the beginning of Ynys Llanddwyn itself (grid ref SH390634) but found very little diversity in the strand line plant assemblage, aside Marram grass, Lyme grass, Sand-wort and Sea Holly. There was a more intact strand line community just around the entrance area onto Ynys Llanddwyn at SH390633 with a denser growth of these species, although on the whole the strand line flora was not particularly rich. It is likely that strand line flora is less diverse than usual this year following the stormy conditions in winter and spring, which undermined pre-existing communities and can sweep away seeds and other propagules for the coming season. Thus, assessing the impact of fewer visitors and lessened footfall is difficult. Considering the low diversity even with reduced usage, it might be that had there been the usual foot-fall the strand line flora would have been quite impoverished.

Pathside flora around Ynys Llanddwyn: the edges of the main footpath around Ynys Llanddwyn were utterly awash with grasses, wildflowers and other plantlife which reflected the generally luscious state of the island's vegetation but was also likely to have responded vigorously to the lack of human footfall. Bloody Cranesbill was a particularly common wildflower species along the paths, along with flowering Hawksbeard (*Crepis* sp) and even scarcer species such as Pyramidal Orchid and Ivy Broomrape. False Fox-sedge (*Carex otrubae*) was seen close to the entrance gate onto Llanddwyn, a recent colonisation at this area which may be associated with the period of lockdown.

The more exposed section of path along the north side of the island was awash with a thatch of grasses and various plantain species in some locations, the path occasionally having entirely overgrown with these species (see the images below).

A particularly noteworthy find was that of a small path of Maiden Pink (*Dianthus deltoides*) not far from the main path on entering Llanddwyn island at SH390632. This is a Nationally Scarce species occurring in less than 100 hectads in the country, and is very scarce in Wales with just two populations in North Wales (on Newborough and Deganwy). At Newborough it has been known since 1915, with the main colony on the



A view over the car park area showing the wildflower growth (in particular Viper's Bugloss) both on the verges and within the car parking spaces themselves.

open dune, with this patch being an interesting outlier which was thought to have been lost. It was rediscovered in 2017 after an absence of over 50 yrs, but this year's numbers of flowering shoots (50) is a significant increase on 2017 (25).

The other scarce plant species that seemed to be doing very well around the pathways was that of Ivy Broomrape (*Orobanche hederaceae*). The Llanddwyn population is the only one on Anglesey's west coast but it is probably the largest on the island judging by the numbers and extent seen during the survey on 17 June. Local botanist and naturalist Nigel Brown commented on having never seen the plant growing through and along the pathways as we observed on this visit.

Plantlife around the Niwbwrch 'beach car park' (SH405635): perhaps one of the most striking discoveries was the growth of wildflowers around the reserve's main car park at the south-east end of Niwbwrch. Here, the usually busy car parking area was covered in species such as Viper's Bugloss and Restharrow, which were growing between the pebbly substrate in the car parking spaces. The verges and grassy banks surrounding the car park were even more vividly engulfed in plant growth, with species like Dune Pansy, Common Stork's-bill, Lady's Bedstraw, Mallow, and even large Horse Radish plants growing amidst the spires of Viper's Bugloss; all of which appeared much more abundant than usual. The discovery of Weld (*Reseda luteola*) in one area of the car park was also particularly noteworthy, likely to be the first record for this area of Niwbwrch. The areas around recycling bins and bike lock-up sites were also noticeably vegetated. The species list below gives an outline of the most striking species present around the car park, with the images below documenting this colourful 'wilding' of the car park.

Plantlife around the verges at Niwbwrch toll booth entrance (grid ref SH414649): casual parking here has increased since the main access route for cars has been closed to the public, and this seems to have resulted in local erosion of the herb-rich verge around the banks at this site. There is also a strong possibility that the population of another very local plant species on Anglesey has suffered from this here, the Meadow Saxifrage (*Saxifraga granulata*).

Litter

It was very positive to record such a low amount of litter during the entire day's survey across the four sites, with just three items found around a picnic bench at the car park near Ynys Llanddwyn

See 'Table 20: Results of the litter survey in Niwbwrch' on page 122

See 'Table 21: General sightings during the survey at Niwbwrch' on page 123

Other sightings

There were a number of other incidental sightings during the day's survey worthy of note. With the warm and settled conditions of late morning came a wealth of day-flying moths and butterflies, particularly around the coast of Ynys Llanddwyn. Over 20 Six-spot Burnet moths, 10 or more Yellow Shell moths and five passing Dark-green Fritillaries were perhaps the most noteworthy of these insect sightings, with three Emperor Moth caterpillars, several Poplar Leaf Beetles and the micro moth *Grapholita compositella* found in a marshy area of grassland near the ruins on Ynys Llanddwyn. The number of Yellow Shell moths is particularly worthy of note, being an unusual number of Llanddwyn (most other day totals of this species here are usually single sightings only). It is difficult to say exactly why so many more moths were observed, although a lack of footfall along the paths could have helped the survival of pupae which are located just beneath the soil surface. A bull Grey Seal surfaced in the small bay near Ynys y Clochydd on Ynys Llanddwyn (near point 6 on the map in figure 7c). Just one Red Squirrel was seen during the entire day's survey, near the entrance gate at the site's north-east end (grid ref SH414648). The main feeders distributed through the forest at popular gathering sites do not appear to have been filled regularly (understandably), and so this has likely impacted the foraging behaviour of these characterful mammalian inhabitants of the forest.

People

There were two people on the tip of Ynys Llanddwyn (one on a mountain bike, the other who had swum in from offshore), and several cyclists along the forest tracks in the forest itself.

Table 18: Results of the bird survey at Niwbwrch

Site name: Nibwrch and Ynys Llanddwyn

Survey type: Breeding birds

Surveyors: Ben Porter, Jo Porter and Nigel Brown

Survey date: 17 June 2020

Species	Scientific name	T1	T2	T3	T4	Total
Blackcap	<i>Sylvia atricapilla</i>	3	2	0	0	5
Robin	<i>Erithacus rubecula</i>	2	1	0	0	3
Chaffinch	<i>Fringila coelebs</i>	2	0	1	0	3
Great Spotted Woodpecker	<i>Dendrocopos major</i>	1	0	1	0	2
Chiffchaff	<i>Phylloscopus collybita</i>	1	0	1	0	2
Linnet	<i>Carduelis cannabina</i>	1	4	15	0	20
Blackbird	<i>Turdus merula</i>	3	0	0	0	3
Wren	<i>Troglodytes Troglodytes</i>	3	3	0	0	6
Treecreeper	<i>Certhia familiaris</i>	1	1	0	0	2
Great Tit	<i>Parus major</i>	1	0	0	0	1
Song Thrush	<i>Turdus philomelos</i>	1	1	0	0	2
Tufted Duck	<i>Aythya fuligula</i>	20	0	0	0	20
Gadwall	<i>Anas strepera</i>	3	0	0	0	3
Oystercatcher	<i>Haematopus ostralegus</i>	4	0	14	90	108
Grey Heron	<i>Ardus cinerea</i>	1	0	0	0	1
Moorhen	<i>Gallinula chloropus</i>	4	0	0	0	4
Mallard	<i>Anas platyrhynchos</i>	6	0	0	0	6
Wood Warbler	<i>Phylloscopus sibilatrix</i>	1	0	0	0	1
Long-tailed Tit	<i>Aegithalos caudatus</i>	0	5	0	0	5
Common Whitethroat	<i>Sylvia communis</i>	0	2	1	0	3
Willow Warbler	<i>Phylloscopus trochilus</i>	0	4	0	0	4
Goldcrest	<i>Regulus regulus</i>	0	1	0	0	1
Coal Tit	<i>Parus ater</i>	0	4	3	0	7
Goldfinch	<i>Carduelis carduelis</i>	0	0	1	0	1
Siskin	<i>Carduelis spinus</i>	0	0	1	0	1
Pied Wagtail	<i>Motacilla alba yarrellii</i>	0	0	2	0	2
Skylark	<i>Alauda arvensis</i>	0	0	3	0	3
Herring Gull	<i>Larus argentatus</i>	0	0	16	0	16
Swallow	<i>Hirundo rustica</i>	0	0	5	0	5

Species	Scientific name	T1	T2	T3	T4	Total
House Martin	<i>Delichon urbica</i>	0	0	2	0	2
Rock Pipit	<i>Anthus petrosus</i>	0	0	15	6	21
Meadow Pipit	<i>Anthus pratensis</i>	0	0	17	0	17
Stonechat	<i>Saxicola torquata</i>	0	0	6	0	6
Great Black-backed Gull	<i>Larus marinus</i>	0	0	3	0	3
Cormorant	<i>Phalacrocorax carbo</i>	0	0	3	0	3
Sandwich Tern	<i>Sterna sandviscensis</i>	0	0	5	0	5
Chough	<i>Pyrhocorax pyrrhocorax</i>	0	0	2	0	2
Ringed Plover	<i>Charadrius hiaticula</i>	0	0	2	0	2
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	0	0	10	0	10
Gannet	<i>Morus bassinus</i>	0	0	6	0	6
Carrion Crow	<i>Corvus corone</i>	0	0	5	0	5
Spotted Flycatcher	<i>Muscicapa striata</i>	0	0	0	1	1
Total number of species		18	11	25	3	42
Total number		58	28	140	97	323

T1: Llyn Parc Mawr**T2: Dune pools****T3: Ynys Llanddwyn****T4: Beach car park and dunes**

Blackcap – Singing males; **Robin** – Singing males; **Chaffinch** – Singing males; **Chiffchaff** – Singing males; **Blackbird** – Singing males; **Wren** – Singing males; **Song Thrush** – Singing males; **Tufted Duck** – One female with 4 chicks, one female with 9 chicks and also with one larger chicks from an earlier brood; **Oystercatcher** – One fledged young at Llyn Parc Mawr, at least 5 pairs around Llanddwyn with one nest of three eggs; **Wood Warbler** – One singing male in forest near Llyn Parc Mawr at SH412669; **Long-tailed Tit** – Pair with fledged young; **Common Whitethroat** – Singing males; **Willow Warbler** – Singing males; **Skylark** – Singing males; **Swallow** – One pair likely nesting on Ynys Llanddwyn around lighthouse keeper's cottages; **Rock Pipit** – One pair carrying food and at least 9 males on territory around Ynys Llanddwyn; **Meadow Pipit** – Singing males; **Stonechat** – Two breeding pairs, one with a brood of fledged young on Ynys Llanddwyn; **Chough** – One pair on the tip of Ynys Llanddwyn near Twr Mawr; **Ringed Plover** – One pair nesting on the tip of Ynys Llanddwyn at SH386624; **Carrion Crow** – Pair with fledged young;

Table 19: Plant list for beach car park area in Niwbwrch

Site name: Beach car park, Niwbwrch (SH405635) (Area ~50m)
 Survey type: Path vegetation survey
 Surveyor: Ben Porter
 Survey date: 17 June 2020

Species	Scientific name
Sand-sedge	Carex arenaria
Viper's Bugloss	Echium vulgare
Common Rest-harrow	Ononis repens
Horse Radish	Armoracia rusticana
Hedgerow Cranesbill	Geranium pyrenaicum
Dune Pansy	Viola tricolor ssp.curtisii
Mallow	Malva sylvestris
Lady's Bedstraw	Galium verum
Common Stork's-bill	Erodium cicutarium
Weld	Reseda luteola
Total number of species	10

Common Rest-harrow – A widespread dune species but doing very well in areas around the car park; **Horse Radish**– Expanding population in the car park which could now be the biggest population on Anglesey; **Weld** – Most likely a first record in the car park area, with no recorded sightings to date

Table 20: Results of the litter survey in Niwbwrch

Site name: Niwbwrch and Ynys Llanddwyn
 Survey type: Litter survey
 Surveyor: Ben Porter, Jo Porter and Nigel Brown
 Survey date: 17 June 2020

Litter type	Number
BBQ Grill	1
Sweet wrapper	1
Dog poo bag	1
Number of types of litter	2
Number of litter items	2

All litter items were recorded either on Ynys Llanddwyn or Niwbwrch car park.

Table 21: General sightings during the survey at Niwbwrch

Site name: Niwbwrch and Ynys Llanddwyn
 Survey type: General sightings
 Surveyors: Ben Porter, Jo Porter and Nigel Brown
 Survey date: 17 June 2020

Species	Scientific name	Number
Common Lizard	Zootoca vivipara	1
Dark Green Fritillary	Speyeria aglaja	5
Grey Seal	Halichoerus grypus	1
Emperor Moth	Saturnia pavonia	3
Poplar Leaf Beetle	Chrysomela populi	5
-	Grapholita compositella	5
Six-spot Burnet	Zygaena filipendulae	>20
Yellow Shell	Camptogramma bilineata	>10
Red Squirrel	Sciurus vulgaris	1

Common Lizard – Ynys Llanddwyn; **Dark Green Fritillary** – Ynys Llanddwyn; **Grey seal** – Near Ynys y Clochudd on Ynys Llanddwyn; **Emperor Moth** – Caterpillars in the marshy area near the ruins on Ynys Llanddwyn; **Poplar Leaf Beetle** – In the marshy area of rough grassland near the ruins on Ynys Llanddwyn; **Grapholita compositella** – In the marshy area of rough grassland near the ruins on Ynys Llanddwyn; **Six-spot Burnet**– Ynys Llanddwyn; **Yellow shell** – Many adult moths along the path sides; **Red Squirrel** – At exit from forest at SH414648



1. Six-spot Burnet moth (*Zygaena filipendulae*) and micro moth *Grapholita compositella* on Ynys Llanddwyn
 2. Spurge in the dunes near Ynys Llanddwyn
 3. Poplar Leaf Beetle (*Chrysomela populi*)
 4. xx
 5. Marsh Helleborine (*Epipactis palustris*)
 6. xx





Fixed-point pathway images to record vegetation condition

1. On forest track between Llyn Parc Mawr and 'dune pools' (point P1 on figure 7b)
2. On forest track approaching dune pools (P2 on figure 7b)
3. Picnic bench at car park for Ynys Llanddwyn (P3 on figure 7c)
4. Viewpoint area looking over to Ynys Llanddwyn (P4 on figure 7c)
5. Entrance track onto Ynys Llanddwyn (P5 on figure 7c)
6. Beginning of pathway around Ynys Llanddwyn (P6 on figure 7c)





Fixed-point pathway images to record vegetation condition

- 7. Along Ynys Llanddwyn path (P7 – Figure 7c)
- 8. Llanddwyn (P8 – Figure 7c)
- 9. Llanddwyn (P9 – Figure 7c)



Survey Site 7

Coed y Brenin: Pistyll y Llyn trail and Afon Eden loop

Site	Coed y Brenin: Pistyll y Llyn trail and Afon Eden loop
Survey date	13 June 2020
Transect routes	Llwybr Pistyll y Llyn Cylchdaith Afon Eden

For the Coed y Brenin survey, two transect routes were chosen to cover during the visit: one took the Pistyll Cain walking trail (7km long) from the main visitor centre in a loop to Pistyll y Cain and back; the second was a shorter route on the Afon Eden walking train from the visitor centre to the river and back. Surveys carried out during these transects included birdlife (especially evidence of those breeding), mammal signs, litter abundance, vegetation condition along the path and at any popular gathering areas, and fixed-point images to document habitat condition.

Weather conditions: skies were cloudy to begin (80% cloud cover) but clearing by mid-morning with mild temperatures (17°C) and a light breeze from the north-east (10-15mph).

Below is a map of the routes taken and the target notes referred to later in the results section.



Figure 8: A map of the Coed y Brenin survey area showing the two transect routes carried out on 13 June 2020: the orange line shows the circular route taken from the visitor centre (orange dot) around the ~7km long Pistyll Cain walking trail; the brown line shows the much shorter circular walking route from the visitor centre to the Afon Eden and back. Red points are target notes referred to in the results summary below; blue points are fixed-point photography sites mainly targeted along pathways (see section below) and the green dot near the Afon Eden is a vegetation survey site.

Survey results

The results for each of the surveys are given below, referencing the maps above for specific locations using numbers in parentheses.

Birdlife

A total of 33 bird species were recorded during the two surveys in the Coed y Brenin forest, amounting to 314 individual birds overall. 31 species were seen along the Pistyll Cain walking trail, and 18 species along the shorter Afon Eden route. The most common species recorded were Wrens (47 in total), Robins (38 in total) and Blue Tits (28 in total). There was plenty of evidence of breeding activity, with family parties containing fledged young in many areas, and a good number of singing male birds. A number of scarcer species during the survey included Wood Warblers, a Dipper, two Tree Pipits, seven Common Crossbills and two Pied Flycatchers.

Overall, there was little evidence of species having benefitted or responded to the reduced number of people using the walking trails we surveyed. The most obvious difference we observed was where a number of species had nested very close to the main footpaths, which would unlikely have happened with the usual number of people using the pathways. A pair of Wood Warblers were nesting within two metres of the Pistyll Cain path at SH726264 (point 2 on the map above); a lovely grass-lined nest with three young chicks within. Similarly, we also found the nests of a Robin pair, two Blackcap pairs and a Willow warbler pair which were nesting very close to the side of the Pistyll Cain footpath. A pair of Grey Wagtails were nesting somewhere in the ruins around the Pistyll Cain hydro installation, although could well have done so had people been frequenting this area anyway.

A pair of Swallows and House Sparrows were nesting around the eaves of the main visitor centre (point 1 on the map above), which may or may not have done so had the usual volume of people been coming and going here.

Vegetation

On the whole the pathways were not as overly vegetated as some of the other sites have been, although images were taken at several points along the main tracks to be able to compare its condition in the future.

See 'Table 22: Results of the Coed y Brenin bird survey' on page 138

See 'Table 23: General vegetation survey around the Afon Eden picnic area' on page 140

There were some stretches of the Pistyll Cain trail where reduced trampling had certainly impacted the vegetation, however, for instance along the edge of the cliffs at the waterfall at SH734275 where the fern and moss communities had grown around over a usually well-worn path; and along the gravelly path descending to the Pistyll Cain waterfall itself, where tree saplings such as the Beech below had begun growing up in the centre of the path. These saplings would certainly not survive long with the usual level of footfall on some of these paths.

The most noticeable site where the vegetation had flourished in the absence of visitors was around the picnic area near the Afon Eden at SH721268 (green dot on the map in figure 7). Here, the usually well-trodden ground surrounding the picnic tables was awash with an amazing variety of grasses and wildflowers, carpeting the ground and positively flourishing in the absence of trampling. A total of 19 different species were recorded in the area immediately surrounding the picnic tables, including Common Cow-wheat, Pignut, Selfheal and Yellow Pimpernel.

Litter

It was happily a very quiet series of surveys for litter. Just two pieces were found on the two transect routes taken, these being a single dog poo bag and a piece of plastic wrapper.

Other sightings

There was a wealth of other wildlife to be seen during the survey around Coed y Brenin, with a particular abundance of insects in the warm and settled weather conditions. The most noteworthy of these insect sightings included a Golden-ringed Dragonfly, two Small Pearl-bordered Fritillaries, a Green Hairstreak butterfly, a Speckled Longhorn beetle and a Yellow-spot Tortrix moth, most of which were in the area of open woodland near Pistyll Cain itself (point 4 on the map in figure 7).

The most dramatic animals present were that of the industrious Hairy Wood Ants and their accompanying nest mounds. We counted at least eight nests along a stretch of the Pistyll Cain trail (point 3 on the map in figure 7). These mounds were very active, with thousands of the impressive ants warming up on the side of the mound in the morning sunshine, and large trails of worker ants spreading out into the surrounding forest in search of prey and vegetation for the nest.

Mammalian records were few and far between, although there was a single area of likely Badger feeding scrapes in the forest near the visitor centre, and two Red Fox scats found along the Pistyll Cain footpath.

See 'Table 24: Results of the litter survey at Coed y Brenin' on page 141

See 'Table 25: General sightings on the Coed y Brenin survey' on page 141

Robin chicks in a nest amongst a scaly male fern, right next to the Pistyll Cain footpath.



- 1. xxx
- 2. xxx



People

Between 5-10 people were seen along the forest tracks during the survey, with around 5 cyclists on these 4x4 tracks too.

xxx



Table 22: Results of the Coed y Brenin bird survey

Site name: Coed y Brenin

Survey type: Breeding birds

Surveyors: Ben Porter and Jo Porter

Survey date: 13 June 2020

Species	Scientific name	T1	T2	Total
Blackcap	Sylvia atricapilla	18	2	20
Robin	Erithacus rubecula	26	12	38
Chaffinch	Fringila coelebs	4	1	5
Great Spotted Woodpecker	Dendrocopos major	1	0	1
Chiffchaff	Phylloscopus collybita	4	4	8
Blackbird	Turdus merula	4	3	7
Wren	Troglodytes troglodytes	38	9	47
Treecreeper	Certhia familiaris	15	0	15
Great Tit	Parus major	4	0	4
Blue Tit	Cyanistes caeruleus	26	2	28
Song Thrush	Turdus philomelos	5	3	8
Willow Warbler	Phylloscopus trochilus	10	0	10
Wood Warbler	Phylloscopus sibilatrix	4	0	4
Grey Wagtail	Motacilla cinerea	6	1	7
Long-tailed Tit	Aegithalos caudatus	4	0	4
Common Whitethroat	Sylvia communis	2	0	2
Goldcrest	Regulus regulus	17	5	22
Coal Tit	Parus ater	18	4	22
Lesser Redpoll	Carduelis cabaret	3	0	3
Siskin	Carduelis spinus	14	0	14
Swallow	Hirundo rustica	0	2	2
Carrion Crow	Corvus corone	3	0	3
Pied Flycatcher	Ficedula hypoleuca	0	2	2
Nuthatch	Sitta europaea	12	0	12
House Sparrow	Passer domesticus	1	3	4
Garden Warbler	Sylvia borin	1	0	1
Jay	Garulus glandarulus	1	1	2
Buzzard	Buteo buteo	2	0	2
Crossbill		7	0	7

Species	Scientific name	T1	T2	Total
Tree Pipit	Anthus trivialis	2	0	2
Bullfinch	Pyrrhula pyrrhula	5	0	5
Dunnock	Prunella modularis	1	1	2
Dipper	Cinclus cinclus	1	0	1
Total number of species		31	18	33
Total number		259	55	314

T1: Pistyll y Cain Loop**T2: Afon Eden Loop**

Blackcap – Singing males; one pair nesting very close to main pathway; **Robin** – Singing males, one nest very close to the pathway with four chicks; **Chaffinch** – Singing male; **Chiffchaff** – Singing males; **Blackbird** – One fledged juvenile; **Wren** – 23 singing males; **Treecreeper** – Two families with fledged young; **Blue Tit** – Singing males and six fledged young; **Willow Warbler** – Singing males; one pair nesting close to the main path; **Wood Warbler** – One pair nesting near main path; two other singing males; **Grey Wagtail** – One nesting pair, several singing males; **Common Whitethroat** – Singing male; **Goldcrest** – Singing males; **Coal Tit** – Singing male and family with fledged young; **Swallow** – Pair nesting around main visitor centre; **Pied Flycatcher** – Pair nesting near the picnic area at Afon Eden; **House Sparrow** – Pair nesting at the main visitor centre; **Garden Warbler** – Singing male; **Tree Pipit** – Singing male;

Table 23: General vegetation survey around the Afon Eden picnic area

Site name: Afon Eden picnic area, Coed y Brenin (SH721268) (Area ~10m)
 Survey type: General vegetation survey
 Surveyor: Ben Porter and Steve Porter
 Survey date: 13 June 2020

Species	Scientific name	DAFOR Score
Germander Speedwell	Veronica chamaedrys	Frequent
Daisy	Bellis perennis	Frequent
Dog Violet sp	Viola sp.	Occasional
Wood Speedwell	Veronica montana	Frequent
Yellow Pimpernel	Lysimachia nemorum	Occasional
Heath Bedstraw	Gallium saxatile	Occasional
Crested Dogtail	Cynosurus cristatus	Abundant
Sweet vernal grass	Anthox anthum	Frequent
Cock's foot grass	Dactylis glomerata	Frequent
Rough meadow grass	Poa trivialis	Frequent
Grey Sedge	Carex divulsa	Frequent
Selfheal	Prunella vulgaris	Rare
Wood-sorrel	Oxalis acetosella	Occasional
Meadow Buttercup	Ranunculus acris	Rare
Hard Fern	Blechnum spicant	Occasional
Common cow-wheat	Melampyrum pratense	Occasional
Pignut	Conopodium majus	Frequent
Ragwort	Jacobaea vulgaris	Rare
Hazel	Corylus avellana	Rare
Total number of species		19

Table 24: Results of the litter survey at Coed y Brenin

Site name: Coed y Brenin
 Survey type: Litter survey
 Surveyors: Ben Porter and Steve Porter
 Survey date: 13 June 2020

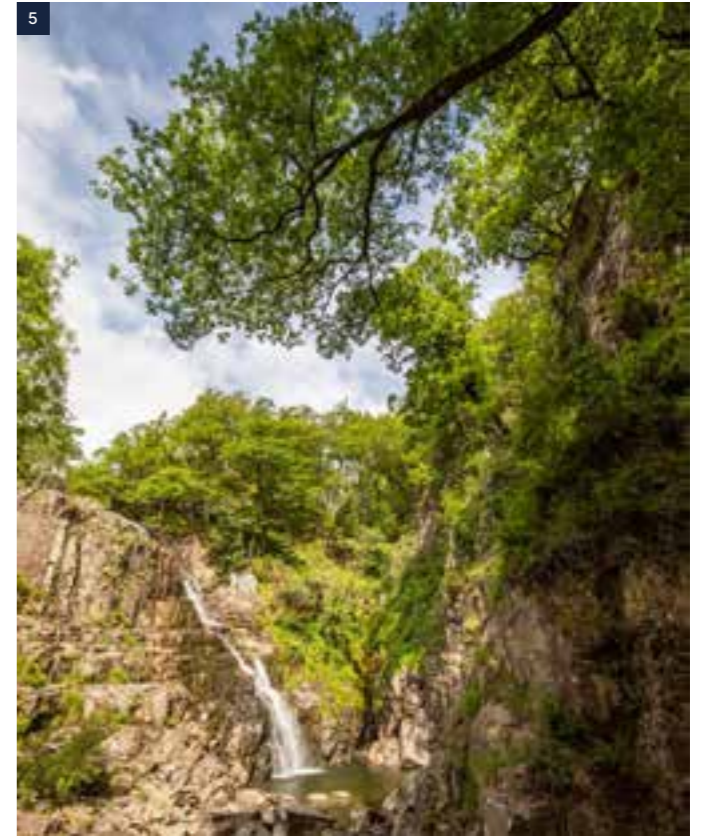
Litter type	Number
Dog poo bag	1
Wrapping plastic	1
Number of litter types	2
Number of litter items	2

Table 25: General sightings on the Coed y Brenin survey

Site name: Coed y Brenin
 Survey type: General sightings
 Surveyors: Ben Porter and Steve Porter
 Survey date: 13 June 2020

Species	Scientific name	Number
Badger	Meles meles	-
Hairy Wood Ant	Formica lugubris	8 nests
Small Pearl-bordered Fritillary	Boloria selene	2
Red Fox (1)	Vulpes vulpes	1 scat
Green Hairstreak	Callophrys rubi	1
Speckled longhorn	Pachytodes cerambyciformis	1
Golden-ringed Dragonfly	Cordulegaster boltonii	1
Red Fox (2)	Vulpes vulpes	1 scat
Yellow-spot Tortrix	Pseudargyrotoza conwagana	1

Badger – Evidence of badger scraping on forest floor towards beginning of route 100m from visitor centre; **Hairy Wood Ant** – along path edges; **Small Pearl-bordered Fritillary** – in woodland clearing along Pistyll Cain loop; **Red fox (1)** – along Pistyll y Cain trail; **Green Hairstreak** – at Pistyll Cain; **Speckled longhorn** – at Pistyll Cain; **Golden-ringed Dragonfly** – at Pistyll Cain; **Llwynog Coch (2)** – along path near Pistyll Cain; **Yellow-spot Tortrix** – at Pistyll Cain.



- 1. xx
- 2. The pretty micro moth with the immensely long name *Pseudargyrotoza conwagana*
- 3. Speckled Longhorn beetle (*Pachytodes cerambyciformis*).
- 4. xx
- 5. One of the many waterfalls around Pistyll Cain
- 6. The nest mound of Hair Wood Ants (*Formica lugubris*)



Fixed-point pathway images to record vegetation condition

1. Beginning of Pistyll Cain trail (P1)
2. Pistyll Cain near woodland clearing (P2)





Summary of lowlands survey

An overview of the main take-aways from the survey work in the lowland and wooded areas surveyed

Nesting birds close to pathways and around usually popular areas
 At all three of the lowland sites, nesting birds were found in some areas where they most likely would not have been in usual circumstances. In Ceunant Llennyrch a Grey Wagtail pair were nesting in the gorge above the main Rheadr Du waterfall, around Ynys Llanddwyn there was a pair of Ringed Plovers nesting close to the tip of the island on a beach likely to be much less disturbed than usual, and Llanddwyn also held some five pairs of Oystercatchers and nine singing male Rock Pipits on territory; in Coed y Brenin a pair of Wood Warblers were found nesting very close to the main path, along with a Robin, two Blackcap pairs and a Willow Warbler pair all nesting very close to one of the main footpaths.

Vegetation growth along pathways and around popular gathering sites

The growth of plantlife and vegetation along pathways was less noticeable than in the upland areas of Snowdonia, although sites such as picnic areas (for instance around Niwbwrch and in Coed y Brenin) had clearly benefitted from a lack of footfall and reduced trampling, with a wealth of wildflowers and grasses growing verdantly in some locations. The path around Ynys Llanddwyn was perhaps the place where this reduced trampling had most noticeably impacted the ground flora, with a large diversity of wildflowers and grasses growing around the edges of the path and even on the path itself in some places. The main car park at Niwbwrch was another site which had responded strikingly to the lack of use during the lockdown period, with an amazing diversity of wildflowers such as Viper's Bugloss and Rest-harrow growing all around the car park

and within the parking spaces itself. The verges here were awash with wildflowers, where usually trampling and footfall would likely present such a colourful flourishing of species. Whilst not surveyed exhaustively, the gorge in Ceunant Llennyrch has likely benefitted from fewer people gorge walking the area, which would normally damage the delicate fern and moss communities on the rocks and boulders. One site near Rheadr Du still bore evidence of erosion from use by people but was showing signs of recovery, illustrating the impact of human footfall at this site.

Lack of litter

Similarly to the upland areas, there was generally a pleasant lack of litter along the footpaths and around the hotspot gathering sites in the areas covered within this survey. A total of seven items in Ceunant Llennyrch, three around Niwbwrch and two in Coed y Brenin is remarkably little, and provides a clean and untouched canvas to be starting with as areas open up. Hopefully encountering such clean visitor sites would promote those visiting to keep it as such, although subsequent surveys will reveal whether this is the case or not. It's clear that popular gathering areas do the worst for litter disposal, for instance with almost all the items in Ceunant Llennyrch coming from a single barbeque event and gathering on the rocky beach near the Rheadr Du waterfall.

Damaging activities during lockdown

On the whole there seemed to be few signs of negative impacts from the lockdown period, but one site worth mentioning is the edge of the woodland at Ceunant Llennyrch (grid ref SH666391). Here, a number of motorbikes appeared to have been tearing around a bank beneath the trees and ripping up delicate moss communities during recent days, damaging an area of the forest floor some 20-30 metres wide. Activities such as this are perhaps more likely to occur in some areas with a lack of people around to report such things.

Coed y Brenin



