

An assessment of the wildlife response to Covid-19 lockdown in north-west Wales: summary of findings from three-year study

1. 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 greatly 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.

To evaluate how wildlife was responding to this exceptional period in the Snowdonia National Park and across north-west Wales, a series of biodiversity surveys were commissioned by Natural Resources Wales, the National Trust and the Snowdonia National Park Authority in June 2020. These surveys looked at birdlife, vegetation condition, litter prevalence and established a number of fixed-point photo monitoring sites across key locations in North Wales, and a report was produced in July 2020 that documented the findings. The sample of sites chosen for these surveys comprised the upland areas of Y Wyddfa, Cwm Idwal National Nature Reserve, Y Carneddau and Cader Idris, along with the more lowland sites of Coed y Brenin, Ceunant Llennyrch and Niwbwrch / Newborough Forest. To fully examine how the 2020 period of lockdown affected these areas, it was recognised that a repeat of these surveys over subsequent years was necessary, which would enable a comparison to contrasting years when visitor usage of these areas had resumed.

After the lifting of the nation-wide lockdown on 6th July 2020, the National Park and other sites included in these surveys were fully open to the public with government guidelines on social distancing in place. The following summers of 2020 and 2021 were some of the busiest the area had witnessed in many years, particularly due to restrictions on overseas travel, which led to issues such as queues of people for up to 2 hours to take a summit photograph on top of Yr Wyddfa in August 2020. There was a sharp rise in fly-parking, fly-camping, littering and wild swimming, with many

feeling the need to re-connect to nature after such a long period of restriction and not perhaps doing so in the most respectful way. In contrast to the hectic summer of 2021, the 2022 visitor season was less extreme in the surges of people flocking to the area; instead, there was a more continuous level of visitation typical of years prior to the coronavirus.

These three contrasting years encompassed by the surveys provide a valuable insight into how people interact with the wildlife and landscape of this region. This report summarises the key findings from the survey work, giving an overview of the main trends identified and some of the issues that came to light as lockdown restrictions eased and visitors flooded back into the national park's key destinations.

The annual survey results for each year and site-by-site reports are available online from the Snowdonia National Park website and Natural Resources Wales.



2. Overall summary of findings

The unique period of lockdown through spring 2020 coincided with the main breeding season for many of the bird species which utilise the areas, and also followed a spring of particularly favourable weather conditions for vegetation growth and insect abundance. The result was an abundance of breeding birdlife across upland sites and lowland areas, with some birds breeding along usually busy pathways and upland lakes; lush vegetative growth often obscuring some of the usually well-worn paths, and some species taking advantage of the quiet period to utilise areas normally excluded to them due to the busyness of visitor pressure.

The years of 2021 and 2022 saw highly contrasting weather conditions in the spring to that of 2020 (especially 2021, which experienced a very cold and delayed spring season), and this combined with a return to 'normal' visitor access to the sites provided very different results to the surveys in 2020. Breeding birdlife was generally much reduced in abundance during 2021 and 2022 across all survey sites, and especially in the upland areas. Scarcer breeding species, such as Ring Ouzels, Merlins and Common Sandpipers, were seen in lesser numbers across the transects, seemingly affected both by the unfavourable weather conditions leading up to the breeding season and also the explosion of visitor pressure in the sites. The noticeable reduction in common breeding bird species between 2020 and subsequent years is more likely to be attributed to contrasting weather as opposed to visitor pressure, and highlights the need for resilient ecosystems that are able to withstand the increasingly extreme weather conditions inflicted on areas due to human-induced climate change. Such ecosystem resilience could be achieved by working with the national park's stakeholders and land-owners to restore degraded habitats, regenerating natural vegetation communities and bringing species back to areas where they have historically been lost.

Littering became a pronounced issue through 2021 in the peak of post-lockdown visitor pressure in the park, with popular sites beset by issues such as 'fly camping', extensive littering and a general lack of respect to the landscape from some groups of visitors. These extreme effects were less pronounced in 2022, but the presence of litter in key locations such as Y Wyddfa, sites in the Ogwen Valley and Newborough Forest remained significant. Areas a little further off the beaten path were less impacted by the littering issue, including areas like the Carneddau range, Cader Idris and Ceunant Llennyrch woodland.

Some direct impacts of visitor footfall on the landscape were visible following the lockdown period into 2021 and 2022, including increased erosion and trampling of certain areas and pathways. In most cases, this only involved the slight widening or 'splaying out' of existing pathways. In other cases, entirely new pathways were trampled to access increasingly popular tourist hotspots: one such site was the series of waterfalls along Cwm Llan, where hundreds of visitors frequently congregated during the summer on warm days to swim in the river and its pools. The large increase in footfall to access this site has resulted in trampling of the riverbank, new pathways created across the grasslands nearby and other effects to the vegetation communities here.

These key findings are discussed in greater detail below, along with recommendations and suggestions for ways to alleviate some of the more negative effects observed.

3. Key findings and recommendations

An overall reduction in breeding bird abundance over the three years, particularly in upland areas.

One of the key trends identified across the three years from the breeding bird surveys is that of a decline in the abundance of birdlife in the areas surveyed. Figures 1 and 2 below outline these changes visually, both for the upland and lowland sites. In many cases, this involved common breeding bird species such as Meadow pipits (*Anthus pratensis*) and Wheatears (*Oenanthe oenanthe*), and is most likely not attributable simply to the increase in human visitation to these areas. There are many potential reasons for the observed change, but one factor that has likely played a large role is the extreme contrast in spring weather conditions across the three years.

In 2020, the UK experienced the wettest February on record, the sunniest spring, a heatwave in the summer and was overall one of the top five hottest years on record. In North Wales, it was a warm, dry spring following a very wet start to the year, and this combination of conditions resulted in a good growing season and abundance of insect biomass for the bird breeding season. In contrast to this, 2021 experienced the wettest May on record and a very cold spring until June. This cold, wet weather affected upland areas especially, delaying the growing season and bird breeding season by many weeks. In 2022, the spring was the fifth warmest on record for the UK, and was followed by some of the hottest and driest conditions ever experienced.

The increasing frequency of extreme weather events such as these are a direct result of human-induced climate change, and are likely to play an increasing role in influencing the area's wildlife populations over the coming years. To ensure the unique and spectacular wildlife of the national park is able to withstand such fluctuations, these findings add even greater impetus to assess how we can best create resilient ecosystems across the Eryri National Park. Activities that restore habitats and sequester carbon could include upland bog restoration, more facilitated tree planting in appropriate areas, restoring damaged habitats where scarce species have been lost, and altering grazing patterns in areas where vegetation condition is severely affected. In the South Downs National Park, [an ambition has been set to manage 33% of the land for nature by 2030](#), which is a vision which could be applied to other national parks such as Eryri. Given the dramatic declines witnessed in wildlife populations across Wales and the UK in the last fifty years, an ambition such as this to help nature flourish and recover across the national park would be an exciting step forward to ensuring the area's rich heritage of nature is regenerated for future generations.



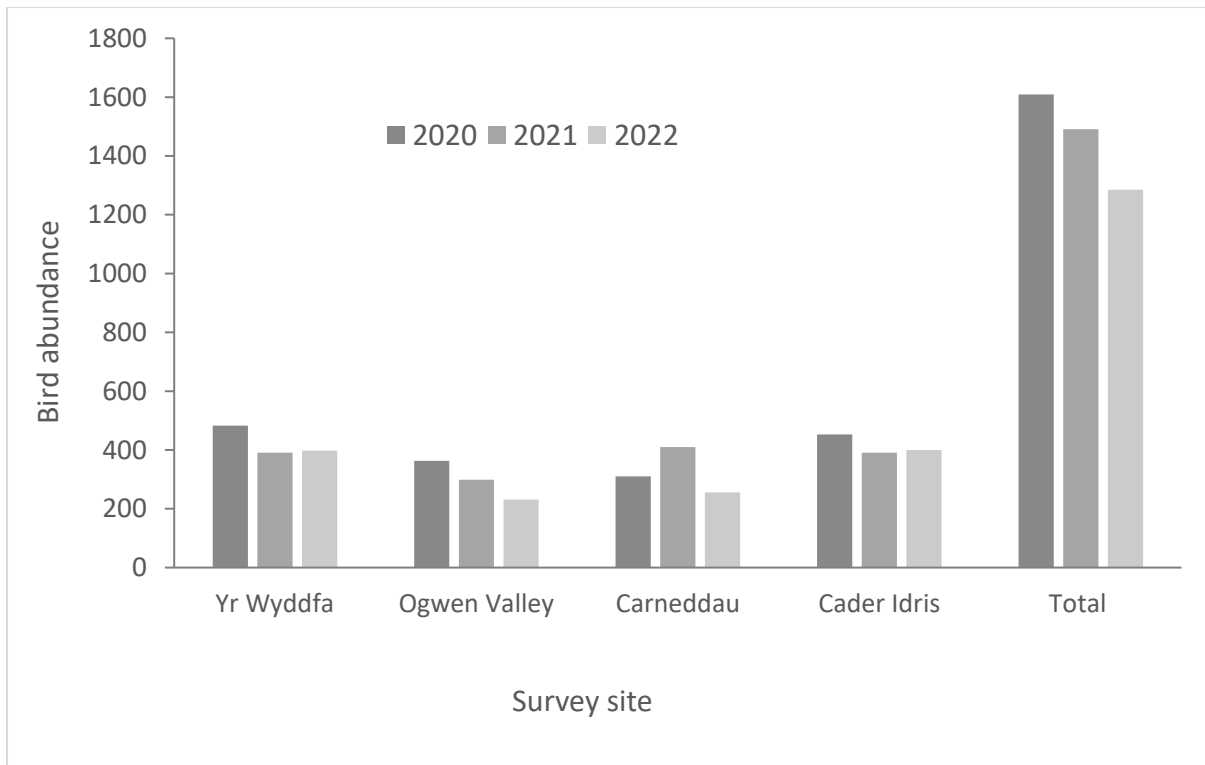


Figure 1. Results from the breeding bird surveys in upland areas demonstrating a decline in the abundance of birdlife across the three years.

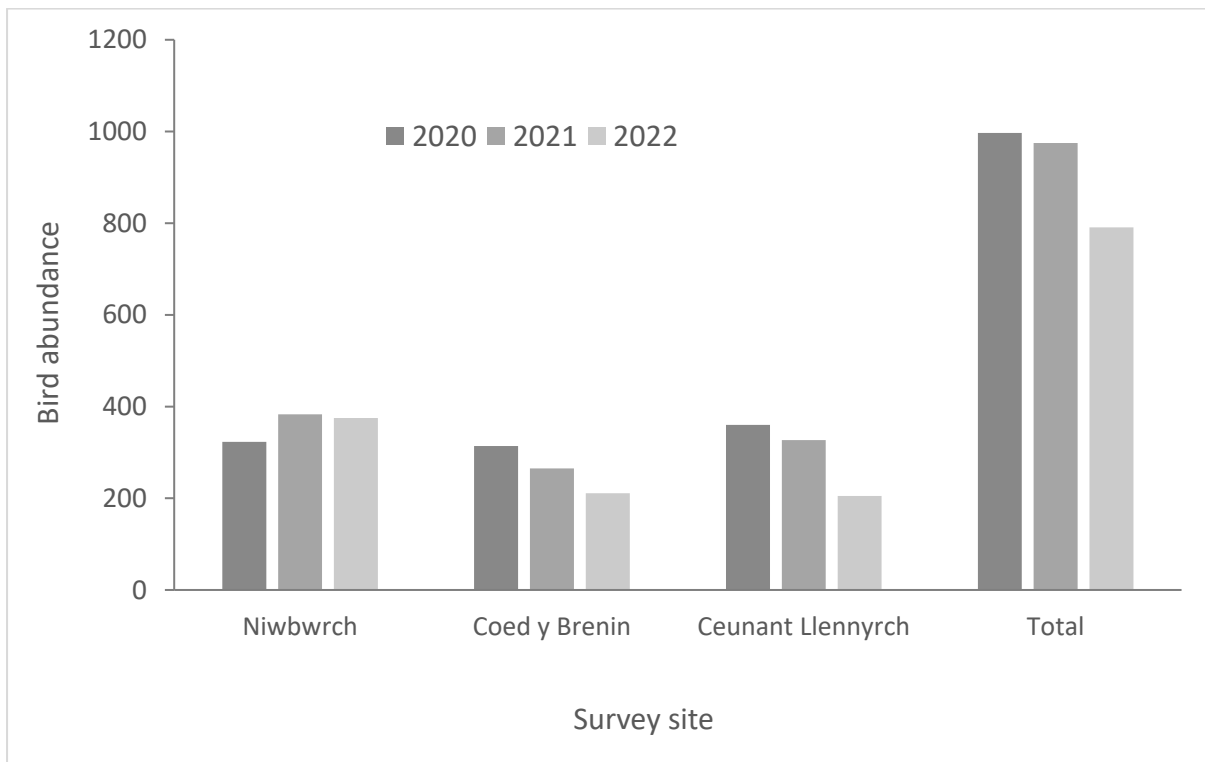


Figure 2. Results from the breeding bird surveys in lowland areas, demonstrating a similar decline in the abundance of birdlife as seen in the upland areas, but to a lesser extent at Niwbwrch / Newborough Forest.

Potential disturbance of breeding birds around upland lakes.

A number of scarce breeding bird species are reliant on utilising upland lakes as their breeding grounds; for instance, the Common Sandpiper (*Actitis hypoleucos*) is a wading bird which breeds around small upland lakes, but is also very susceptible to disturbance from people. The surveys found a reduction in the number of these breeding waders in a number of upland lakes between the lockdown period and subsequent years: a total of 19 Common Sandpipers were recorded across the four upland sites in 2020, compared to just six in 2021 and eight in 2020. This reduction could be due to a variety of other factors, but disturbance is likely to play a key role in the ability of the species to successfully breed in some of these upland sites. One way of negating any potential impacts of visitor pressure on species such as this would be to restrict access to key breeding areas through the spring nesting season – interventions such as this are commonly implemented in nature reserves for sensitive breeding bird species, and are usually accompanied with interpretation boards or signs to explain to visitors why such reduced access is necessary. The lakes of Llyn Llydaw (Snowdon) and Llyn Idwal (Dyffryn Ogwen) seemed especially good for Common Sandpipers during the quiet lockdown period, and could be good localities to begin trialling such a method.



A Common Sandpiper near Llyn Llydaw, along the Miner's track on approach to Yr Wyddfa. This species overwinters in Africa and migrates to northern European areas such as the UK to breed in spring.

Disturbance to nesting birdlife around Ynys Llanddwyn.

Another key site where disturbance from visitors was seen to be a potential issue for breeding birds was around the popular tidal island of Ynys Llanddwyn at Niwbwrch. A number of shorebirds nest around the coast of this tidal island, including Oystercatchers (*Haematopus ostralegus*) and one or two pairs of Ringed Plovers (*Charadrius hiaticula*). However, both of these species are prone to disturbance from people and dog walking, and the nests themselves are very exposed to being trampled if care is not taken. At least seven pairs of Oystercatchers and one pair of Ringed Plovers were recorded around the island's coast in the quiet lockdown period of 2020, but no Ringed Plovers were found in 2021 and only one Oystercatcher was recorded. This issue was raised following the 2021 surveys, and in 2022 it was positive to see two sections of electric fencing had been erected around potential breeding areas for Ringed Plovers for the 2022 breeding season. Indeed, birds were

seen in each of these enclosures, although due to the brief nature of this survey we were unable to confirm whether the birds were successful or not in their breeding attempt. The fencing off of nesting areas during the breeding season is an effective intervention to reduce the impact of disturbance to breeding birdlife such as this. However, it was also noted in 2022 that a number of dogs off leads were present on Ynys Llanddwyn and the nearby beaches during the brief survey visit. The disturbance caused from dogs running around the coastal areas here could cause adverse disruption to the shorebirds attempting to breed, as well as all the other ground-nesting birdlife on the island. Increased engagement and interpretation notices to inform visitors of the importance to keep dogs on leads would be a big help to this issue, or seasonal wardens in place to help engage with visitors and explain these various issues facing the wildlife in the area.



One of the fenced areas on Ynys Llanddwyn (Niwbwrch) to try and reduce disturbance to nesting wading birds such as Ringed Plovers.



The popularity of areas such as Ynys Llanddwyn can result in adverse disturbance to sensitive nesting shorebird species such as Ringed Plovers, making interventions such as seasonal fencing of nesting areas an important intervention.

Disturbance to wildlife from recreational watercrafts.

Another issue of disturbance to nesting birdlife and important wildlife species along the coastal areas was noted during the 2021 and 2022 surveys following the lifting of lockdown in 2020. This issue involved that of the increased usage of recreational watercrafts along the coastline and its impact on breeding, roosting and feeding birdlife, as well as marine mammals. Recreational crafts, both motorised (such as jet skis) and non-motorised (in particular, stand-up paddle boards, 'SUPs'), are being used much more commonly across the coastline in some areas following the lift of lockdown in 2020. Jet skis have been identified as a particular issue across the coast of Ynys Môn during 2021 and 2022, with sensitive seabird colonies being frequently disturbed and some birds even killed by irresponsible use of these watercrafts. To a lesser degree, the recent explosion in the use of 'SUPs' by recreational water users has also provides a new challenge for assessing how the widespread use of these crafts along the coast might impact species of shorebirds which often depend on undisturbed periods to rest and feed. To try and reduce the impact of jet skis on wildlife during the 2022 breeding season, a project called ['Operation Seabird' was launched](#) by the North Wales Police in collaboration with various environmental bodies. This initiative aims to engage and educate people about the issues of disturbance to wildlife along the coastline, and provides a good starting point to addressing the issues identified above.



'Operation Seabird Cymru' was launched in spring 2022 to help address the issue of disturbance to coastal wildlife from recreational water craft and visitor pressure along the Welsh coastline.



Jet ski disturbance to an important seabird colony at Ynys Lawd (South Stack) in July 2021.

Littering issues across Eryri following lockdown 2020.

One of the most noticeable differences between the lockdown period of 2020 and subsequent years was the degree of littering across the areas surveyed in the national park. Relatively low levels of littering in 2020 was followed by a substantial spike in 2021, and then a slight reduction in the 2022 surveys. Figure 3 below provides a visual outline of this change over the three years, and also reveals that certain visitor hotspots were magnitudes worse for littering than other areas. The worst sites for the volume of litter recorded were Yr Wyddfa (especially the summit area), some sites around the Ogwen Valley survey area (Tryfan summit being one hotspot), and areas in Niwbwrch / Newborough Forest. Overall, a total of 75 items were found on Yr Wyddfa in 2020, compared to 299 in 2021 and 176 in 2022. In the Ogwen Valley, this amounted to eleven items in 2020, 88 in 2021 and 59 in 2022; in Niwbwrch the totals involved just three items in 2020, 78 in 2021 and 75 in 2022. Such totals only represent a sample of littering from one or two visits to these areas, and do not take into account the weekly removal of bin bags full of litter that was gathered by volunteer groups such as the *Caru Eryri* team.



A discarded bag of litter on the summit of Tryfan during the 2021 surveys.

The issue of littering across popular sites in the national park provides even greater impetus to promote designations such as the 'Plastic Free Snowdon' status, alongside a wider suite of actions to try and address this issue. Such a vision would be a firm step forward to raising awareness of the issue and changing the behaviour of visitors coming to the area who may be contributing to the problem. In addition, a diverse array of other ideas exist to tackling the littering issue, and could be implemented by the national park and partners given the resources.

Deposit return scheme

For example, the national park could trial a deposit return scheme with local businesses for some of the common litter items like drink bottles and soft drinks cans (some of the commonest litter items found during the surveys). Deposit return schemes work by adding the cost of a deposit to the price of a drink item, which is then redeemed when consumers return their empty drinks containers to a

designated return point. Such schemes are already commonplace across a number of European countries, and the UK government have outlined their plans to introduce a deposit return scheme from 2023. The Snowdonia National Park could therefore be in a very good position to try trialling this scheme across the park ahead of its implementation wider afield.

Refill stations

Plastic bottles and hard plastic items from drinks bottles were a very common item found across the surveys during 2021 and 2022. Such single-use plastics could be avoided by installing a number of water refill stations near popular sites where visitors can refill reusable bottles when visiting these areas. With Wales pledging to become the first 'refill nation', the national park would be well placed to implement such an idea at some of its more popular sites.

Citizen science and litter recording

Involving local people and visitors in the monitoring of the litter issue could provide effective data to identify the main sources of litter and how its prevalence could be reduced. For example, people volunteering with the *Caru Eryri* group, other litter picking volunteers or people simply walking in the national park could remove and record the litter items on a smartphone app. Such apps can then help to identify the main types of litter and where they come from.



Discarded litter near the Snowdon summit buildings during one of the survey visits in June 2021.

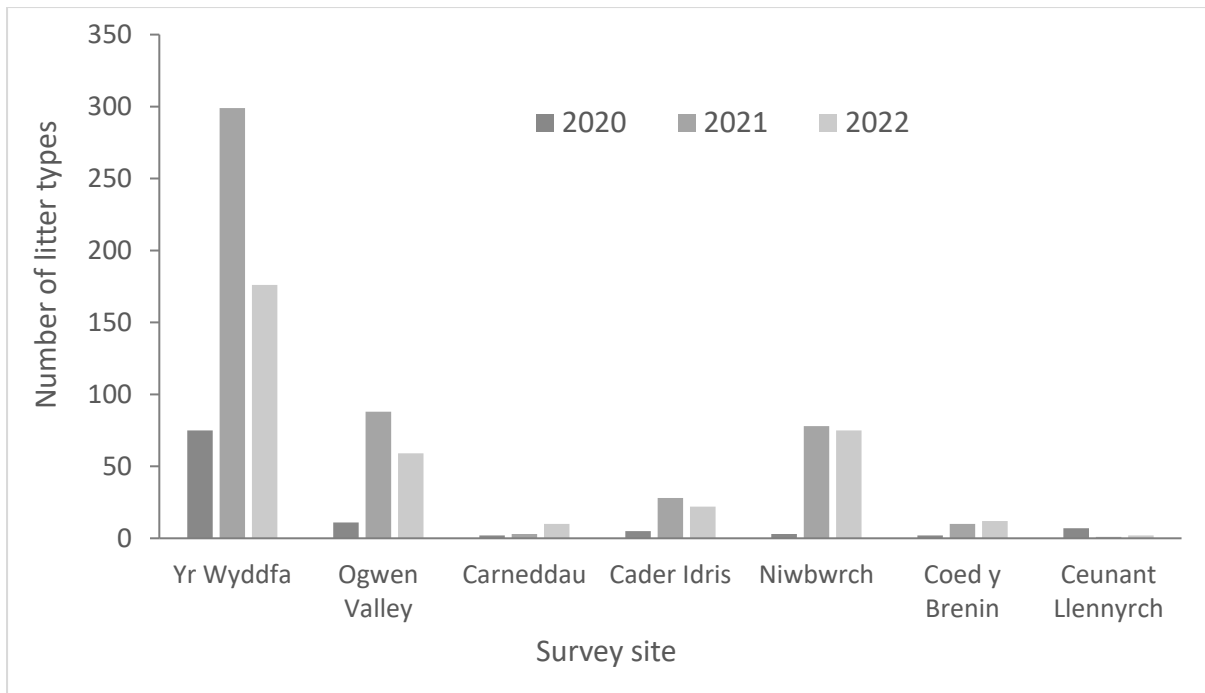


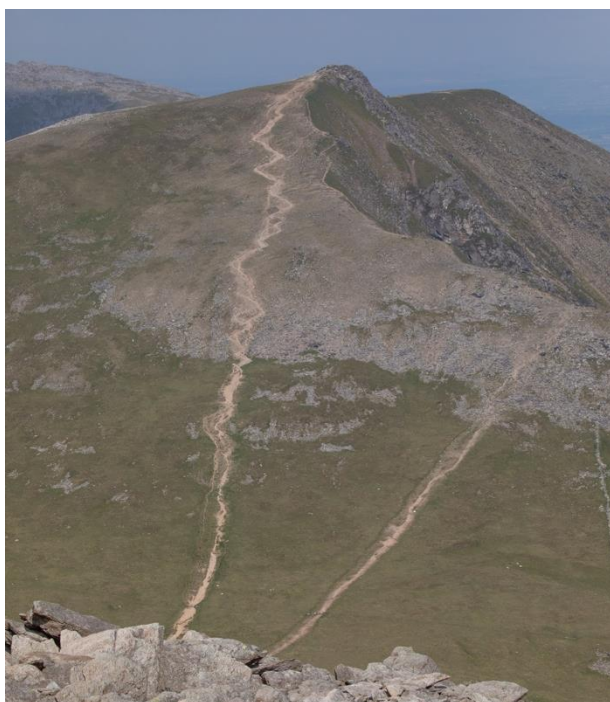
Figure 3. Abundance of litter recorded across the seven survey areas during the three survey years; the three worst sites for littering were Yr Wyddfa, Ogwen Valley and Niwbwrch, and 2021 was by far the worst year for litter abundance.



A plastic bag discarded along the shores of Llyn Llydaw on Yr Wyddfa, June 2021.

Erosion of pathways and damage to vegetation communities.

An ongoing issue across national parks such as Eryri is managing the effects of the footfall from the tens of thousands of visitors which visit these landscapes every year to enjoy the outdoors. The surveys revealed a number of places where large increases in visitor pressure after the lockdown period was lifted has resulted in even greater amounts of trampling and erosion to paths than was previously experienced. This issue was particularly noticeable along the waterfalls in Cwm Llan, where new pathways have been trampled across fields to access this increasingly popular swimming area, and the sides of the river have been heavily trampled and eroded. The slopes of Y Garn above Cwm Idwal also present a noticeable example of this issue, where the paths ascending the summit are increasingly splaying outwards and may start to damage an important area of the dwarf shrub Dwarf Willow *Salix herbacea*. In the lowland survey areas, the gorge sides of Ceunant Llennyrch presented a similar issue, where an increase in gorge walking here presents the potential to damage the delicate communities of mosses, lichens and ferns which the site is so important for. At Niwbwrch, the ‘beach car park’ area was awash with a diverse and spectacular display of wildflowers during the 2020 lockdown period when few people were able to use this normally busy car park. However, surveys in the subsequent years found a greatly reduced diversity and wealth of flowering plantlife here, with erosion and damage to the banks in between car parking bays due to excessive trampling. It would be possible to fence off sections of the banks here to enable plant communities to flourish during the spring season, and provide a wonderful display of flowers for pollinators and insects. Interpretation panels could be introduced to explain to visitors the importance of allowing areas of verges such as these to be left and not mown during spring periods, helping to spread the ‘No Mow May’ campaign which conservation charities such as Plantlife Cymru are heavily involved in promoting.



Above left: the increasingly scarred pathway leading up the summit of Y Garn above Cwm Idwal, where delicate populations of the scarce Dwarf Willow (*Salix herbacea* – above right) are coming under threat of being trampled and eroded.



The diverse communities of mosses, ferns, liverworts and lichens in the Celtic Rainforest ecosystem of Ceunant Llenyrch are delicate and easily eroded by footfall.



The Cwm Llan area along the Watkin Path has seen an enormous increase in visitor pressure following the lifting of lockdown in 2020, with many new pathways created by people walking off the main footpath and much trampling on the river banks.



A flourishing diversity of plantlife sprung into life across the beach car park area during the lockdown period in 2020.



In subsequent years, the return to high levels of visitors to the beach car park resulted in excessive trampling of the bank sides, a large reduction in flowering plantlife and very little habitat for insects and pollinators.

Monitoring landscape changes over the long term.

One of the methods trialled during the three-year study was to establish a number of ‘fixed-point imagery’ sites. This involves choosing a location where an image is taken from the same place and looking at the same vantage point each year, and can allow for visual documentation of changes across seasons and over longer periods of time. Whilst there were some minor changes seen in some of the vegetation communities between 2020 and the subsequent years (see below), the time period of this study was too short to capture the nature of longer-term changes in the habitats and landscapes in this region. The fixed-point imagery method is a very effective method to visualise such changes, however, and can be used as a tool for engaging visitors in this aspect of the park’s monitoring work. For instance, the national park could consider installing ‘official’ fixed point sites in a number of areas of the park, where visitors can slot their smartphone into a fixed bracket, take an image of the set scene and upload the image via an app or QR code to a website. This form of citizen science could be a useful tool to help monitor changes across the park both through the seasons and over longer periods of time, and has been used effectively in other areas and other national parks in the UK. For example, ‘photo posts’ have been used in the Cairngorms National Park for many years to document changes over time (see <https://cairngorms.co.uk/photo-posts/map/>), and Natural Resources Wales utilise this method for some habitats, alongside engaging interpretation panels to educate visitors in the importance of this work.



An example of a fixed-point photo bracket installed at Cors Fochno in the Dyfi Valley © Naomi Davies.



An example of the fixed-point images taken during the survey work to document changes in vegetation and landscape condition over the three-year period. This site, on the lower flanks of Cader Idris, demonstrates the large difference in vegetation growth experienced between 2020 (top image) and the following years (lower image in 2022).

4. Acknowledgments

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