



COEDWIGOEDD  
GLAW CELTAIDD  
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RAINFORESTS  
WALES

# Celtic Rainforests LIFE – LIFE17 NAT/UK/000020

## Case Study: conservation grazing at Coed Garth Gell, Meirionnydd.

### Summary

- In the ancient woodland at Coed Garth Gell, Meirionnydd, surveys had reported a decline in conditions beneficial to rainforest wildlife like lower plants (lichens and bryophytes) and woodland birds like the pied flycatcher. In particular, shading was a significant problem, caused by dense regeneration of holly and birch, and by unchecked growth of bramble and bracken.
- Some of the dense tree regeneration and holly thickets were deemed to be too large and thick for grazing animals to make an impact. Therefore some initial sensitive thinning works took place.
- Following this, a grazing regime with Highland cattle was initiated in late 2019. The cattle took to the woods immediately and quickly had a very positive effect on levels of bramble and ivy. They have also controlled the regrowth of the cut holly and thinned trees.
- Their longer term impact has been just as positive. Over the 6 years since grazing began, staff have made some minor changes in response to observed effects on the site. The length of the CRLIFE project has meant that it has been possible to adjust and readjust the grazing regime over a reasonably long time and arrive at a robust formula for grazing this site.
- Subsequent management will involve the continued monitoring of the site to assess impacts and potentially to adjust the grazing regime as required.

### Introduction

Coed Garth Gell is an RSPB reserve of around 67ha, situated north of the Mawddach estuary in south Meirionnydd (SH685198). There is a mixture of habitat types within the reserve, the dominant habitat on the lower sections being H91A0 Atlantic oak woodland ("Celtic Rainforest"), with more open areas of heathland above. These woodland areas are designated as part of the Meirionnydd Oakwoods and Bat Sites Special Area of Conservation (SAC), which is particularly important for woodland birds, lesser horseshoe bats, and lower plant assemblages.

There is a history of industrial use (gold mining and ore processing) at Coed Garth Gell. The site was grazed heavily until the 1980s, when it was purchased by the RSPB. Since then grazing animals had been excluded until the Celtic Rainforests LIFE (CRLIFE) project re-introduced them, apart from some fairly high levels of trespass sheep grazing at the northern end of the site. Although initially, excluding grazing had allowed a resurgence of plant diversity across the site and had secured the future of the wood by allowing some younger trees to get away, over time the woodland was becoming too dense and shady for some of the flora and fauna this type of habitat should support.

### Preparatory works

#### Thinning

The CRLIFE project carried out some initial woodland restoration works to begin the process of creating a more open woodland structure. Although cattle and other grazing animals will push down or damage some smaller saplings, thickets of larger, denser saplings needed to be thinned. Targeted thinning around mature oaks (halo thinning) was necessary to encourage the older trees to maintain an open grown structure that would benefit lower plants, and allow sunlight to reach the base of the trunk and lower branches where lichens and bryophytes like to grow. Grazing pressure should then keep these thinned areas from regrowing too thickly.

#### Infrastructure

It was decided to repair the historic boundaries at Coed Garth Gell where possible, and a total of 1,242 square metres of dry-stone wall were repaired or rebuilt. Although a much bigger investment, stone walling can be repaired more easily using existing materials, and can be maintained indefinitely, bringing down the calculated cost per year. There is also an inherent value in these features and in supporting traditional crafts. We also added some sections of stock fencing, pedestrian access gates, handling facilities suitable for TB testing, and new bilingual signs (Welsh – English) to introduce the public to the grazing animals on-site.

Installing this infrastructure was difficult due to the nature and terrain of this kind of site. Access is difficult, and often materials must be carried long distances across steep ground. This often results in higher costs as the additional labour is factored into prices by contractors. The site has a number of footpaths across it, so we needed Gwynedd Council's permission to install gates across the designated Public Right of Way.

### Monitoring

All project sites were subject to Common Standards Monitoring (CSM), and bird (CBC) and lower plant surveys at the start of the project, and this will be repeated at the end. In addition, we are undertaking fixed-point photography on sites quarterly, which allows us to build up a more detailed picture of changes over time. Day to day, observations by the grazer, site warden, and project staff influence immediate decisions within the framework of the planned season, for example, when to move the animals to the next compartment.

### Grazing plan

A local grazer with Highland cattle was already known to RSPB staff. His location nearby meant that Coed Garth Gell could be added on a TLA (Temporary Land Association) – so in terms of livestock movements and surrounding regulations, the site is part of his existing farm. The site is let on an annual peppercorn grazing licence; and a support payment is made to the grazer twice a year to cover costs associated with keeping low numbers of animals on difficult sites.

One of the issues with grazing a woodland of this size is the difficulty with looking after the animals (making regular welfare checks). This can be very time-consuming, as it can be hard for the grazer to find them, plus the site is largely inaccessible to any vehicle. The cattle in Coed Garth Gell have therefore been fitted with GPS collars, which transmit their whereabouts to the grazer's mobile phone, with updates at frequent regular intervals. The cattle can therefore be found quickly, and also as the grazer can see that they are moving around and therefore very likely to be uninjured, the frequency of welfare checks can be reduced. Mobile reception is patchy across the site, but the collars provide enough information for the grazer to work out the animal's likely location. The collars can also be used to act as a virtual fence to contain the cattle in specific sections of the woodland if need be. However, stock proof fencing or walling was still needed around the site in order to (try to) prevent trespass sheep grazing. Sheep are very selective grazers, and in the northern section of the site they had been having a negative impact on the delicate woodland flora, which they seem to prefer to grass or scrub.

The total hectare to be grazed for this site is 38ha, and the plan was for it to be grazed all year round, with the cattle moved seasonally across the different habitat types. SSSI consent was obtained for the site that allowed 0.2 Live Stock Units (LSU), which works out at 7 cattle for the whole site for 12 months.

Broadly the original grazing plan was to rotate the animals around the 4 compartments within the wood as follows:

Compartment (compt) 1 has a large area of bracken on the more open *ffridd* sections and was therefore to be grazed in spring so that the cattle could trample the emerging fronds. Woodland sections in this compt also had a thick bramble understorey which could be usefully reduced by grazing.

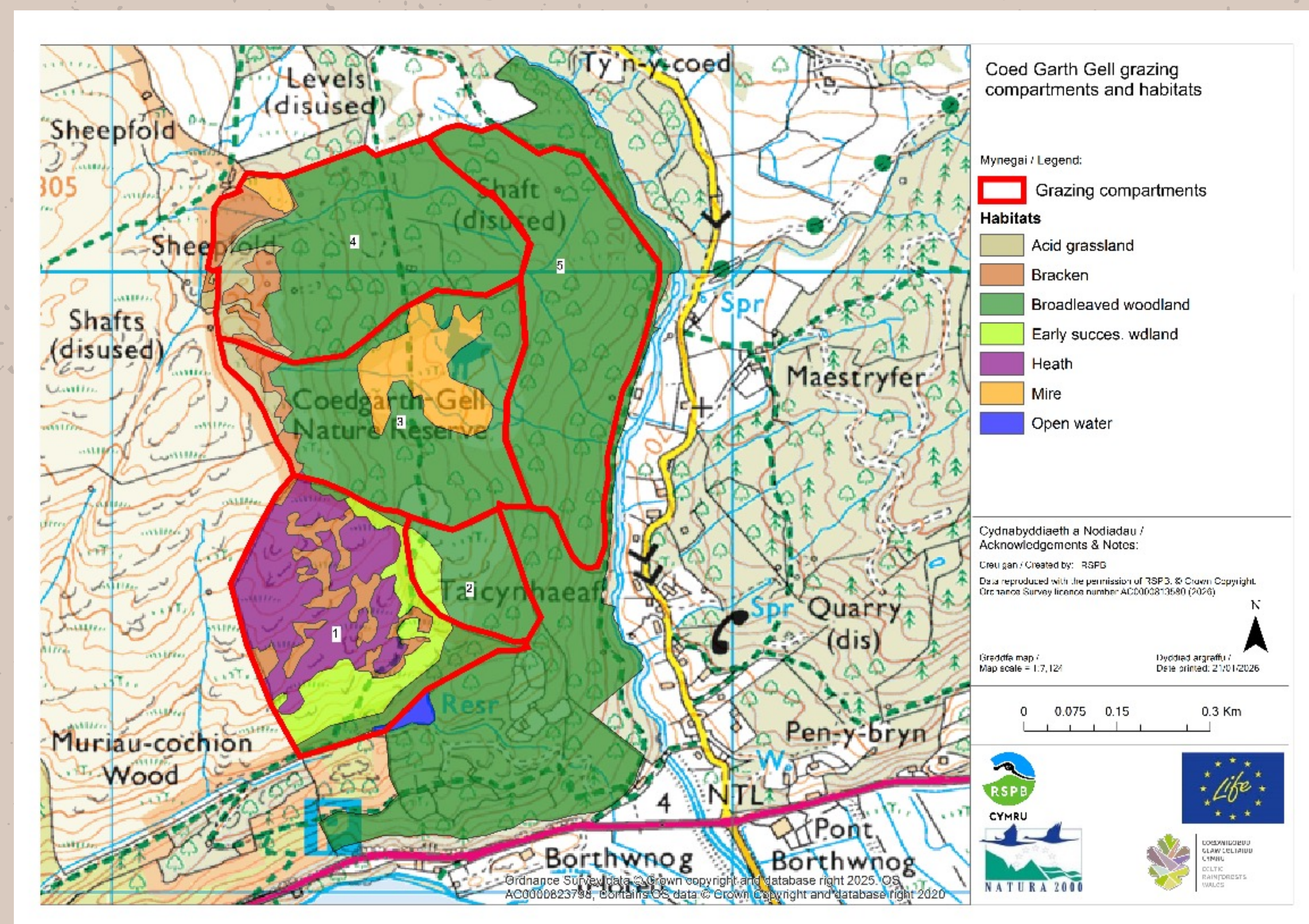
Compt 2 was to be grazed in winter: this is a woodland compt which contained lots of holly which we anticipated would only be taken in winter. It is small and has no water source so needs to be grazed with Compt 1 or 3 or for a very short time.

Compt 3 is mire/wet heath with *Molinia caerulea* (purple moor grass) and was therefore slated for summer grazing. *Molinia* is more readily eaten in summer; at other times it may be eaten but is not as tasty or nutritious, i.e. other things might be eaten first.

Compt 4 is mainly woodland. As with 2 there was a lot of bramble and holly in this compt making it ideal for autumn/winter grazing. However as there is forage in this section that cattle would eat all year round, eg bramble, regenerating trees which are dense in some areas, and other forest flora, this compt could also be used as an area where the animals could be placed when they weren't needed or couldn't find sufficient forage elsewhere on the site.

Compt 5 is mainly woodland. This area was under a Glastir agreement when the project began, which meant that it could not be fenced or grazed until this expired in 2025.

1. Ffridd habitat is an upland habitat, defined as the fringe between more intensively managed upland fields and the open mountain habitats, at altitudes between 100m and 450m [2]. It can include a matrix of different habitats including heath, acid grassland, bog, bracken, rocky outcrops and trees – PONT website [www.pontcymru.org](http://www.pontcymru.org)



Cattle grazing compartment 1 on their first day on site



Same area June 2023. Bramble has not returned

### Year 1 (2019-2020)

Coed Garth Gell was completed in sections, and three highland cattle were introduced to Compt 1 on November 1st 2019 as this was the first completed section. This compt is 11ha of mainly heath, but includes some areas of woodland. In early 2020 Compt 2 was completed and the cattle were given access (an additional 3 ha). Restrictions imposed as a result of the Covid 19 pandemic stopped fencing works after this, which delayed the rotational grazing plan, and meant that the cattle stayed in Compt 1 for much longer than planned. They eventually had to be taken off site due to lack of forage on 27th September 2020, and they had made a big impact during this time, especially on the bramble understorey within the wooded areas. Although eventually they began to lose condition and had to be removed, it is interesting to note that the 14ha sustained them through nearly a year's grazing. It is also worth noting that after they were removed they quickly recovered condition, and within a few months were the same as the pasture-fed animals.

### Year 2 (2021)

Cattle returned in late 2020, as soon as the next compartments were completed. The very last works were completed in January 2021, and the cattle remained in Compt 3 until September, when they were moved to 2 following the planned grazing rotation. However as the bramble had not grown back in Compt 1, and Compt 2 is too small to be grazed by itself for long, they were given access to 3 after a couple of months.

### Year 3 (2022)

In January the cattle were moved to Compt 4, which has bramble and other winter forage. They stayed there until March, but for the rest of this year the grazer moved them between the different compts a number of times. This happened largely because Compt 1 had still not had much bramble regrowth, so they were moved around in search of forage. By June the *Molinia* in compts 1 and 3 had started to regrow, so over the summer their forage needs were being met; but at the same time their impact on the site had been very favourable, and it was felt that the same animals could be used at other sites without having a negative result for Coed Garth Gell. Therefore at the end of August the cattle were removed and taken to RSPB Coed y Parc, which is a few miles away across the Mawddach estuary.

### Year 4 and 5 (2023-4)

In 2023 the cattle didn't return to Coed Garth Gell until 15th June. The compartments slated for winter/ spring grazing, i.e. 1, 2 and 4, all still contained only small amounts of bramble and other browse so it suited both cattle welfare and ecological needs to retain the animals on a different RSPB site until the *Molinia* began to grow back well. As it had been a cold spring, that was not until June, so they were moved back into Compt 3 in mid-June after TB testing. They remained on site for the rest of the year, apart from 1.5 months in Coed y Parc (half of Sept and all of Oct)

This pattern continued in 2024, i.e. other sites in the area urgently needed grazing and, as the grazer was unable to provide more animals, the three highlands were moved between Coed Garth Gell and other woodland reserves. In November another grazer with Highlands was found for the other sites, and the cattle returned.

### Year 6 (2025).

With the cattle being away off and on for the past 2 years, grazing levels had fallen a little too low, and it was very positive that we were again able to implement year-round grazing, especially as we had added a new compartment (5). In March fencing works on compt 5 were completed and the two steers were in there until May, when the *Molinia* began again in compt 3. After the summer the cattle went back into compt 5 as there was still plenty of bramble there for them to eat over winter.

### Summary/findings so far

**Cattle breed:** Highland cattle seem very happy with rough woodland grazing. They prefer other herbage to grass generally, and enjoy a varied diet. They are also sturdy and agile and have coped well with the terrain. They enjoy the *Molinia* and put on condition with *Molinia* grazing.

**Grazing levels:** Although initial plans suggested that year-round grazing at 0.2 LSU, i.e. 7 cattle, would be needed at Coed Garth Gell, our current assessment is that the site could sustain 3-4 animals all year round, i.e. a stocking density of around 0.08 LSU/ha/year.

Several factors are influencing this. Compt 1 was heavily grazed in 2020 as the cattle were kept there longer than planned, so the bramble and other understorey scrub was considerably knocked back, and so far has not grown back to previous levels. This has meant that other compartments were initially grazed more than planned, so that there was less forage across the whole site than there might have been if we had been able to properly manage the rotation. Compt 1 was not ready to be grazed again until July 2022, when the *Molinia* on the *ffridd* was growing.

At the same time, periods of very low rainfall in spring and summer during 2020 – 2023 helped to inhibit re-growth of forage that had been knocked back by the cattle. It was always understood that stocking levels would need to vary according to climate and weather conditions. However, it was anticipated that the effects of climate change would lead to more vegetation growth locally, so that higher grazing densities would be needed. This was very much not the case in the first three years, which is likely due to the periods of low seasonal rainfall experienced during this time. Subsequently, 2024 was a wetter year, while 2025 had more regular rainfall. This has coincided with a period where the stocking density was rather low, due to the cattle being used to graze other reserves. The scrub has been growing back over this time and will clearly reach undesirable levels if grazing pressure is not increased, so we are looking to increase grazing density in 2026 back up to 0.08/ha/year: this is still a very low level of grazing (4 cattle on nearly 60 hectares) but clearly current levels are too low. This is an illustration of the fact that regular monitoring and ecological assessment is a necessary part of any woodland grazing project.

Aside from the ecological benefits, an advantage of this very low density of grazing is a lack of worms and liver fluke. Although fluke is present locally, the cattle that have been in the woods grazing over such a large area have been free of fluke. This is probably due to the low grazing density, but also the cattle do graze on various plants within the wood, such as the male fern (*Dryopteris filix-mas*), which are known to have vermifugal qualities.

To summarise, although the cattle have had a very good impact during this time, it is clear that we need to keep grazing pressure at a stocking density of around 0.08 LSU/ha/year, whilst remaining responsive to external factors like climactic variation and reducing or increasing cattle numbers as necessary, if we want to continue to produce the required ecological benefits within Coed Garth Gell.

	2020	2021	2022	2023	2024	2025
Stocking density (LSU/ha/year)	0.19	0.08	0.05	0.03	0.03	0.04



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