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Conservation Grazing Case Study 6 Gwenffrwd Dinas





Conservation Grazing Case Study 6: Gwenffrwd Dinas

Location & background

Gwenffrwd Dinas is a large RSPB reserve surrounded by the Cambrian mountains, where the Afon Gwenffrwd meets the Afon Tywi. It comprises over 680 hectares in total, of which 278 ha is woodland. It also includes a large area of upland, and several tenanted farms which are farmed traditionally, with a mix of sheep and cattle.

The reserve is almost exclusively within the Elenydd - Mallaen Special Protection Area (SPA), the Cwm Doethie - Mynydd Mallaen Special Area of Conservation (SAC) and the Cwm Doethie - Mynydd Mallaen Site of Special Scientific Interest (SSSI) and is heavily designated for both its woodland / woodland features, and its upland habitats. The SAC and SSSI woodlands are largely habitat 91A0 Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles ("Celtic Rainforest") and are important for woodland birds, such as pied flycatcher, wood warbler and redstart, and lower plant assemblages including rich epiphytic lichen communities. The area is part of Plantlife's Cambrian Mountains Important Plant Area, of global significance for lower plants.

History and Previous Management

Gwenffrwd Dinas has been an RSPB reserve since 1967¹. There are several blocks of ancient/mature woodland, but most of the woods that have been worked on as part of the Celtic Rainforests LIFE (CRLIFE) project were planted in the 1980s, and were largely open, bracken-dominated hillsides with scattered trees until then. The planting involved groups of oak being planted in a square, with a single line of birch planted outside each square to act as nurse trees for the oak.

1. RSPB has been working in the area since 1905, originally with the Red Kite Committee on Red Kite protection. The subsequent land purchase was focussed on woodland conservation and demonstrating that farming and conservation could work hand in hand.



In recent years, all these woods have had some grazing at different levels. Centenary Woods West (CWW, see Map 1 below) had been stock excluded under Glastir (Welsh Government Agri-environment scheme) since 2014. There may have been some minor sheep trespass, but no grazing impacts were noticeable when the project started in 2018. The grazier has been reducing sheep numbers however, dropping from 200 sheep in 2019, to 100 at the time of writing (2025). Meanwhile Allt Tyn y Ddôl woods - also known as Centenary woods East (CWE, see map below) - Tan y Foel, and Nant Rhyd Ifor have had limited trespass grazing mainly by sheep. In addition, there is some evidence that there may always have been the occasional deer present in the area. In 2023, reserve staff began to notice more signs of deer grazing, and recent deer surveys have shown that deer numbers have increased and may be continuing to grow.



Figures 1a and 1b. Allt Tyn y Ddôl in the 1980s, scattered trees are visible but significant areas of bracken dominate the hillside (left, picture taken by Tony Pickup). In 2024, the results of planting schemes are clear with a solid block of woodland covering the hill (right).

Grazing introduction: preparatory works

By the time the Celtic Rainforests LIFE project started in 2018 all the woodlands were still fairly dense (see Figures 2 and 3). There was also a thick understorey of bracken and bramble in some areas, increasing across the site.



Figure 2. CWW showing dense birch/young trees, bracken and bramble



Figure 3. Dense regen around older tree, Nant Rhyd Ifor

The project carried out a number of 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. These works were carried out in the first year of the project (2019). Following this, CWW had pre-existing fencing infrastructure which needed some repair, and these fairly straightforward works were completed in winter 2019/20. Covid then delayed any further progress until 2021.



Fencing works in CWE involved fencing up very steep slopes, with very poor access, using hand tools. Contractors were reluctant to take on the job, which was therefore expensive and took some time. SSSI consent for the work included the proviso that treated wood could not be used, so chestnut posts had to be sourced and these added to the expense and the delays. Work was eventually completed in October 2022.

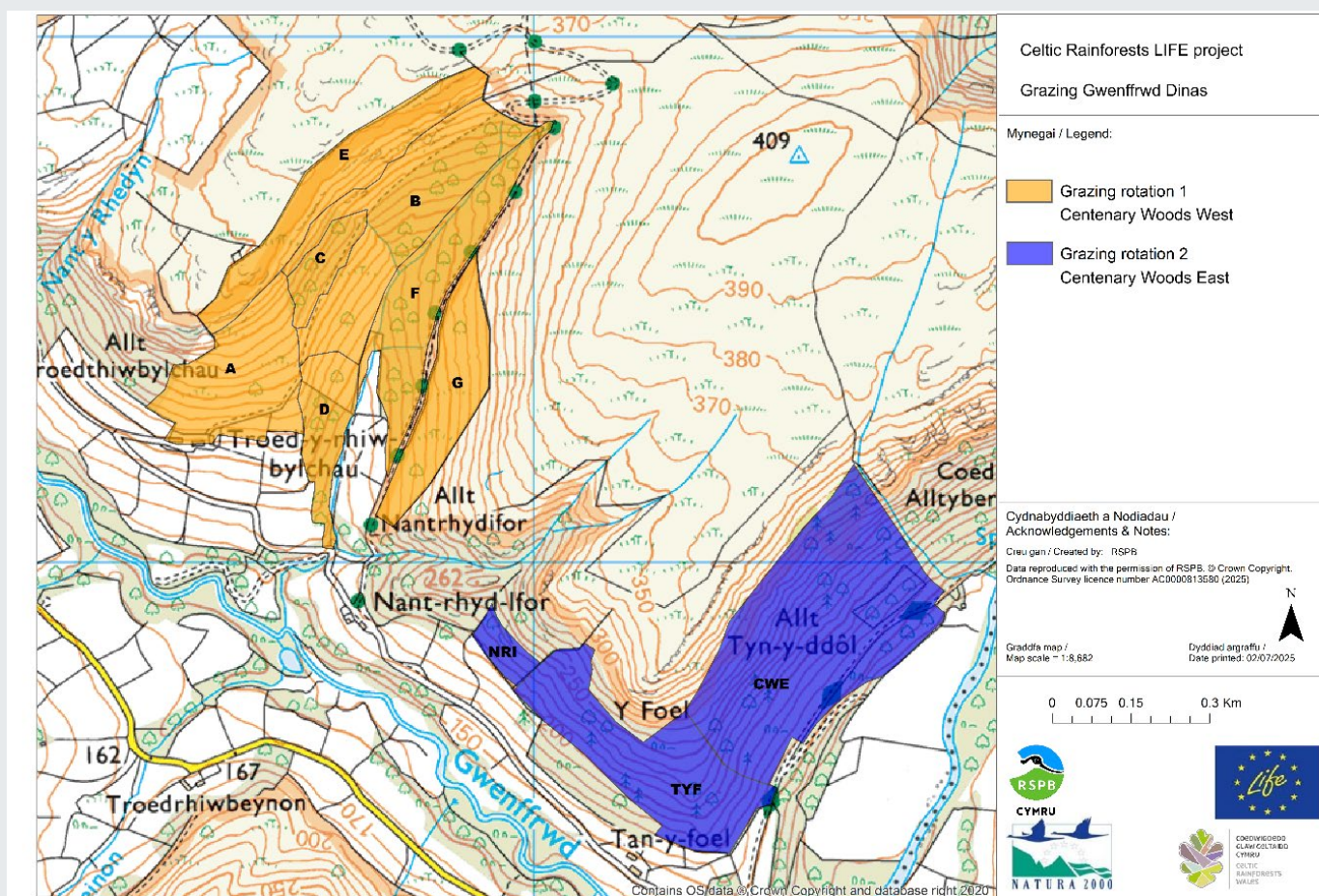
Figure 4. Fencing works at CWE.

Grazing Plans

The decision was made to graze the reserve with two grazing rotations. This fitted well with the two tenant farmers on the reserve, and the woodlands fall into two convenient sections, which, it was felt, were large enough to potentially support year-round grazing.



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Map 1 showing the two grazing rotation areas of Gwenffwd Dinas reserve where the CRLIFE project is working.

Grazing rotation 1 (see Map 1) is a total of 38 ha of woodland, while grazing rotation 2 is a total of 22 ha of woodland (although note that this is as measured on a map, and since both areas are steep hills the hectareage is likely to be greater). The original SSSI consent, obtained prior to the project's start, allowed for grazing in both rotations at no more than 0.4 LSU (LiveStockUnits)/ha/year between April and September; but to give us more flexibility, project staff applied for consent to graze all year round.

In both areas grazing with cattle was preferable, as it was felt that their non-selective grazing and trampling would benefit the woodland flora. However, as the woodlands were fairly steep and had dense bramble cover, access for stock and stock welfare was of concern. Therefore, it was also part of the initial plan that goats may be used as part of the restoration work, being more agile and able to target bramble on steeper slopes. They would either pave the way to enable cattle to access these areas once the bramble had diminished, or they might remain part of the grazing rotation long-term. We also provided shelters for the goats, as even in a woodland setting, goats generally require shelter from rain.



Grazing rotation 1: goats and cattle

Five of the western woodland compartments as shown on the map above (CWWA-E) are all fenced as one block. The other two compartments (CWWF and CWWG) are individually fenced, and a track for vehicle access to the hill above passes between them so they need to be managed separately. CWWF had had some goat grazing previously (around 2017) as a short-lived experiment. The plan was to (re)introduce goats to these two compartments, and also, as needed, to use the goats in other steep areas of the reserve as mentioned above.

The tenant farmer had no cattle but agreed to purchase some for the project. We therefore needed to supply him with some cattle handling facilities, including a pen/handling bay and a highland cattle crush to enable TB testing. Following this he obtained three Highland/Shorthorn cross cattle, so grazing could begin as soon as works were complete.

Grazing the woodlands started in 2021, but initially the cattle simply didn't like leaving the fields. If the gate to the inbye was closed this distressed them and they stayed around the gate area complaining and causing poaching of the ground. The gate was left open, and they gradually began to appreciate access to shelter from wind, rain or hot sun. In the first couple of years the grazier settled into a pattern where he opened the gate in March from the inbye into the woods and closed it again at the beginning of December. However, they never ventured too far, and completely avoided steep areas.

In 2023 as the cattle were making very little impact in the woods, a decision was made to try to source some young highland cattle which might feel more comfortable in the woods and explore more widely. However, this proved difficult due to the grazier's organic certification, as it was hard to source organic Highland cattle. This issue took some time to resolve, with the grazier eventually receiving notification from the relevant body that he was allowed to buy non-organic cattle, since he was able to show that he had made every reasonable attempt to source organic animals. It is worth noting that due to the weighting placed on Highland cattle within the organic scheme, additional land was required to meet the scheme requirements. An additional area of land was therefore added to the tenancy from land that had previously been managed in-house. Eventually he acquired 3 highland cows at the end of November 2024, which went straight into the woods and seemed happy there. The grazier took them out to calve from mid-March-May 2025 but have otherwise been in the woods ever since. However, during this time they had constant access to the pasture as their water source was located there.

Meanwhile the goat grazing was focussed on the remaining 2 compartments, CWWF and G. Initially the grazier bought 5 Bagot goats. Bagots are a very hardy breed which elsewhere in the UK survive as feral goats, so could easily cope with the conditions in the woods at Gwenffrwd Dinas. In November 2021 they went into CWWF, but due to illness, the grazier was unable to watch them closely. They lost their tameness and began to escape, and in December they had to be removed. In March 2023 we tried again, with 5 Boer goats. These were tamer, but much less hardy, and they lost condition. Towards the end of the year numbers were reduced to 3 and the decision was made to try Bagots again. Three Bagots were introduced in April 2024, and the six goats were moved between the two compartments (CWWF and G, 9.5 ha) every few weeks until September, when they went into the larger woodland block CWWA-E. One of the Bagots was a billy, so by spring 2025 all the does were in kid. The Boers needed to come into the barn to kid, but



the Bagots stayed in the woods where the two does each had a kid without needing any care or supplementary feeding. In May the Boers were able to go back in, 3 adults with 6 kids. They stayed in until mid-October, when they had to come back into the barn due to the wet weather.

Woodland compt	Stocking density 2021 and 2022	Stocking density 2023	Stocking density 2024	Stocking density 2025
CWWA-E	<0.04*	<0.04*	0.04 (cows) +0.009 (goats) = 0.05	0.07 (cows) 0.014 (goats) = 0.084
CWWF (goats only)	<0.03**	0.055	0.037	-
CWWG (goats only)		0.025	0.037	-

* The 3 cattle were given access to the woods for 8 months from 21-24 and 10 months in 2025 which would have been a stocking density of 0.09 – 0.1/ha/yr, but as the gate was left open to the fields and the cattle spent much of their time there, we estimate the stocking density to be far less.

** This is the stocking density had the goats been contained on CWWF for c. 8 months, but they escaped frequently. By June they had moved to another woodland and remained there until the grazier caught them in December.

Impact of Grazing Rotation 1

Although they eventually began to enjoy going into the woods, the original Highland/Shorthorn cross cattle have been reluctant to explore very widely or go into very steep areas. Disappointingly, (unlike both Shorthorn and Highland cattle that are grazing other project sites) they don't seem to find bramble very palatable, or it may be that given the choice between eating bramble or pasture, they prefer pasture. Either way, until the goats went into CWWA-E the bramble there was mainly unchecked.

The new Highlands, introduced in the spring of 2025, have been exploring the site more, and seem much happier there. From the grazier's perspective there have been several positives: firstly, as he commented, the cattle must have been finding food in the woods, because they would stay in there a lot of the day despite there being hay available in the field. This has meant that they eat a lot less hay. Secondly the woods also provide shelter from hot sun, and finally, as there is no water in the woods they come into the field to drink, so he has had no difficulty at all with lookering. However, they still seem to be having little impact on the bramble, especially in areas distant from the farm; it is possible that the pasture and hay is providing too much of their diet. As they seem so much more content to be in the woods than the previous cattle, the grazier has agreed to shut them in the woods, and we have therefore provided drinking troughs at a distance from the farm to encourage them to explore more.

The goats meanwhile have had a big impact on the two compartments they were kept in for the first few years, CWWF and G, despite the fact that their stocking density never exceeded 0.055 LSU/ha/year, and was sometimes a lot lower than this. The bramble has been well knocked back, and much of the tree regen has been coppiced and kept in check. Arguably they have had too great an impact on the regenerating



trees in CWWF, especially rowan which they appear to find particularly palatable. Both compartments will now be given a rest from goat grazing for a time, while their recovery is monitored.

In 2025 the goats were moved to the larger woodland block, CWWA-E. As this is a much larger area the herd of between 3 and 6 goats is understandably not making as much of an impact as it did on the other compartments; however over the winter, when the bramble grows more slowly, it was noticeable that the goats were eating the leaves and leaving the vines bare. This will weaken the plants and will also be allowing light to penetrate to the forest floor, at least until the bramble begins to grow vigorously again in spring, which should benefit early spring flora.

In CWWF the goats have eaten some holly, but it is clearly lower down in their list of preferred forage than rowan or bramble. In CWWG where they have spent less time and the holly is very thick, they have made little impact. Disappointingly the cattle have not had much effect on the holly in CWWA-E either, and it is spreading in the understorey in several places. As Highland cattle have been maintaining holly that has previously been cut on other Celtic Rainforests LIFE project sites, we intend to experiment by cutting areas of holly in both CWWA-E, and CWWG when it is ready for grazing again, and monitor the grazing impact.

Grazing rotation 2: cattle within a farm business

This grazing rotation involves three compartments: Nant Rhyd Ifor (NRI), Tan y Foel (TYF), and Allt Ty'n y Ddol (ATD). These are each fenced separately following historic boundaries, which gives the grazier a bit more control over where the cattle are in the woods. As detailed above, the woods had been thinned in 2019, so the worry was that the already fairly thick bramble understorey would increase significantly without grazing pressure, and that the thinned trees would regrow as coppice. There were also several very open areas in Nant Rhyd Ifor and Tan y Foel where bracken was dominant, and we hoped the cattle would trample some of this. Infrastructure around the whole block wasn't complete until end of 2022, but Nant Rhyd Ifor was already fenced, which meant that we could initially use this compartment to try to get the cattle used to woodland grazing.

The grazier already had a herd of Welsh Blacks, a breed which originated in Wales. This herd had been in the family for some time, and were larger, more 'prize' specimens than is typical for the breed. The herd were part of the farm business and an important part of their livelihood, in contrast with other graziers whose animals were acquired for conservation grazing. The cattle were previously managed through upland heathland grazing in the summer and grazing in-byre pastures through the winter. The family was concerned for their welfare in the woods and did not want to risk pushing them in, so initially the grazier just opened the gate to NRI to give the cattle the choice – and none of them were interested. In the hot summer of 2020, they did begin to move into the woods to find shade, but even then they would come out of the woods and all the way down to the farm to drink, instead of using the trough in NRI. This meant that we knew we would have to make some changes once the other two blocks were finally completed if we were going to succeed in getting the cattle in.

In May 2023 when the fencing infrastructure was finally complete, 4 steers were put into Tan y Foel paddock and given access to TYF and ATD. Again they were reluctant to enter the woods, but the grazier noticed that the two bigger (36 months) steers were relatively clumsy on the terrain, and were also more



set in their ways and keener on staying in the field even when it became overgrazed. The younger ones took to it better so he replaced the older two with a couple of 10-month-old steers. Nonetheless, in mid-September he removed the steers from the woods as he felt that they had started to eat acorns ‘with little else to graze’ – despite the large amounts of bramble.

It was thought worthwhile, having only tried the youngstock for one season, to make another attempt in 2024, but again, they did not do well in the woods, lasting for just 15 days in May before needing to be removed to grass to gain condition. In June we decided to trial some Welsh Black heifers which the grazier bought from a neighbour. These were smaller and closer to the original hardy Welsh Black breed type and they did seem to go into the woods more easily. They managed to remain there until August, when they had to be removed as the grazier found a number of hazardous metal spikes still remained on the site from when the trees had been planted in the 80s.

In 2025, NoFence collars were used to keep the cattle away from the spikes so that they could be reintroduced, and 15 of the hardier stock (ranging from 14-30 months old) spent one month in each compartment. Despite the short time period this does work out as a much greater stocking density.

Woodland compt	Stocking density 2023	Stocking density 2024	Stocking density 2025
Tan y Foel	0.07	0.07	0.1
Allt T’yn y Ddol	0.01	0.025	0.08
Nant Rhyd Ifor		0.04	0.1

Impact of Grazing Rotation 2

On this site, both the grazier and RSPB/project staff were keen to work with Welsh Black cattle, as these are an old Welsh breed with significant cultural heritage value. However having tried for several years using different strains of the breed and ages of animal, the stock have shown themselves to be quite selective grazers in the woodland, seeking out patches of grass or ferns, and failing to impact the desired scrub species, particularly bramble and holly, or the regenerating coppice from the thinning works.

On a positive note, we were given SSSI consent to spread hay over the open areas of dense bracken in NRI to encourage the cattle to stay in that area and trample it. The 15 cattle were put in those compartments in July for 28 days, and made a good impact on the young bracken fronds. There have also been some small impacts observed, for example there has been some damage to moss mats covering tree bases, which provides niches for rarer lower plants to colonise (see figure 5).

Figure 5. Tree at Tan y Foel showing cattle damage to moss mat around base of tree. The damage creates niches for less robust species of moss and lichen to gain a foothold





However, in general the Welsh Black cattle have not always suited woodland grazing, with some animals appearing to become distressed or losing some condition and subsequently needing to be removed to alternative grazing. In 2024, although the new group of hardier stock had more impact on the bracken, and in general seemed more comfortable in the woods, they still made minimal impact on the scrub; and in 2025 a similar pattern was repeated. The cattle did not seem to enjoy the bramble and so did not prosper in the woods, failed to make a good impact from an ecological perspective, and kept needing to be removed as they were losing condition.

To address the negative elements of the grazing we have persuaded the tenant to acquire more suitable stock, i.e. Highland cattle. Elsewhere (on other project sites) we have found that Highland cattle not only find bramble particularly palatable, but also they thrive in woodlands, and do not appear to have the tendency to focus on species such as ferns which could otherwise be negatively impacted. However, this has wider impacts on the farm business: as a relatively small farm with little productive land, there is a balance to be struck between sustainable grazing and maintaining a 'profitable' farm business. The grazier wishes to maintain his productive herd of Welsh Blacks which are also needed for the upland grazing; so the solution appears to be a mixed herd of Welsh Blacks alongside a small number of Highland cattle.

The main barrier to this is that grazier currently uses a year round calving system, because his existing yard infrastructure and cattle facilities are not adequate for him to manage his breeding cows if they all calve around the same time. This spread-out calving pattern means that breeding cows need to be kept on the fields in the valley throughout spring and summer, while steers and the bull are kept on the hill to manage the sensitive upland pasture - with the woods acting as a buffer between the two. If he could transition from year-round calving to block calving in February/early spring, this would mean that breeding cows, calves and bull could graze the uplands from mid-May through to autumn, meeting upland grazing objectives; while steers could be kept for woodland grazing. Therefore the cattle facilities at Tan y Foel farm need an upgrade so that spring calving can be implemented, and woodland grazing can be sustainably integrated into his farming system. Fortunately, the CRLIFE project can fund the necessary changes, allowing cows to calve under supervision and in appropriate welfare conditions. This in turn allows restructuring of the herd, keeping a group of young stock available for woodland grazing, and introducing Highland cattle which are better suited for conservation outcomes. The grazier has already begun acquiring Highland cattle ready for next year. By delivering these changes we can secure long-term sustainable grazing of the woodlands at Tan y Foel, whilst demonstrating how woodland grazing can be incorporated into a sustainable farm business.

Summary

Works at Gwenffrwd Dinas have suffered multiple non-grazing related setbacks - including Covid, staff changes (the entire team at RSPB Gwenffrwd Dinas changed during this period), the tenant farmer at rotation 1 was affected by illness for 6 months, and metal spikes were discovered at CWE - which could not have been foreseen or avoided. In addition, although both graziers were open to the idea of grazing the woods, they both also had concerns around the animals' safety and welfare which has meant that progress has been slow while we gradually introduce the animals and ensure that they are prospering in the woodlands. While the cattle do seem to enjoy the shade and shelter of the woods, they like to divide their time between the woods and fields if possible, which may be preventing them becoming fully habituated to



the woodlands and definitely minimises their impact. The Highland cattle in the first rotation have taken to the woods much better than the previous stock, so we plan to install water troughs at the section farthest away from the farmhouse and in-bye, so that they don't have to come into the in-bye for water and are encouraged to roam throughout the wood. In the second rotation, we are upgrading the grazier's cattle facilities so that he can run a mixed herd of Highland cattle and Welsh Blacks which should work better for our ecological objectives, whilst also allowing the conservation grazing to become a useful part of the grazier's existing farm business. It has been a significant positive here, and in all our grazing projects, that the length of the CRLIFE project (9 years) has allowed us the time to trial different grazing systems whilst funds are still available to make any necessary adaptations.

The goats have had a much bigger impact on the woods in terms of eating both bramble and regenerating young trees. Goats officially² count as 0.1 of a livestock unit (as do sheep), whereas cows are between 0.6 (youngstock) and 1 LSU. Arguably however (at least for woodland grazing) goats should be considered as a higher value unit, as their effect on the woodland structure is so pronounced. As previously mentioned, the goats in CWWF have never exceeded a density of 0.06 LSU/ha/year, but they have reduced bramble by c.80-90% and kept on top of the tree regen and coppice regrowth. Unlike cattle, their smaller size means that they do not trample bramble but are able to eat the leaves without damaging its structure. This means that the bramble can often recover more quickly which could be considered as either a positive or negative depending on the site. Similarly with regenerating trees/coppice regrowth, despite being smaller animals, they do have similar effects to cattle in terms of thinning out young saplings as they will both push over and de-bark younger trees, especially rowan. In woodlands with plenty of regen like CWWF and G this is largely a positive feature, but needs careful monitoring.

Another aspect of goat grazing that is both an advantage and a disadvantage is their agility: this means they will readily access steeper areas of woodland, but it also means that they have a tendency to escape. As they are known to respond well to NoFence collars, staff currently plan to use these to better contain and locate them (this was more difficult previously due to lack of mobile signal in the area, but a new mast nearby has improved matters). As the Bagots are quite wild the grazier has doubts about whether this will be possible i.e. that it might prove difficult to repeatedly catch them to change batteries etc., but we hope to trial this approach in 2026.

All in all the experience of using goats to graze woodlands has been very positive, but it is clearly important to keep stocking density low, especially if it is desirable to avoid too much damage to young trees. Therefore, ideally they should be used alongside cattle if possible, to increase grazing pressure without targeting trees, and add the benefits of grazing with large animals (e.g. trampling, and pushing through bracken and scrub that is too large or thick for the goats to penetrate).

2. [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Livestock_unit_\(LSU\)](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Livestock_unit_(LSU))

CWWB - Rotation 1

May 2023		June 2025	
			



Grazing can be seen from the above photomonitoring pictures to have had little effect on the regrowth of coppiced trees, bramble or bracken, probably due to the unavoidably low stocking density. However, in the above 2025 photograph the exuberant summer growth (including bracken) masks the effect of the winter goat grazing on the bramble, see photo to the left, taken in March 2025.



CWWF and G - Rotation 1, goats only

May 2023



June 2025



The goats have severely knocked back the bramble in CWWF: the left column above shows May 2023, which was a drier year than 2025 and also the photos were taken a month earlier. Not much bramble remains, and what is there is scattered and feeble.

May 2023	March 2025
	
	

In the same compartment (CWWF) the goats have also had a heavy impact on the young trees and saplings, especially rowan, which they find particularly palatable. In the above photos most of the rowan has gone with only one surviving. Oak fared better, and seemed to survive more often despite being attacked. The photos below were taken in June 2025 and show coppiced oak recovering:



In CWWG (below) where the goats spent much less time the effect has been nearly as strong on the bramble, but far less saplings have suffered.

May 2023



June 2025





In Allt tyn y ddôl/CWE the cattle have had little impact on the coppice regrowth, and bramble has also increased.

April 2021		March 2025	
			
			



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