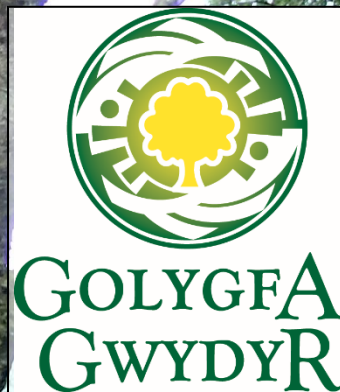




Woodland management plan Caerdroia, Gwydyr Forest 2026 - 2031



Site details

Name: Caerdroia (formerly Pen y Parc)
Location: Parc Uchaf, Gwydyr Forest
Grid reference: SH793 601
Altitude: 220-260 m
Aspect: North veering East

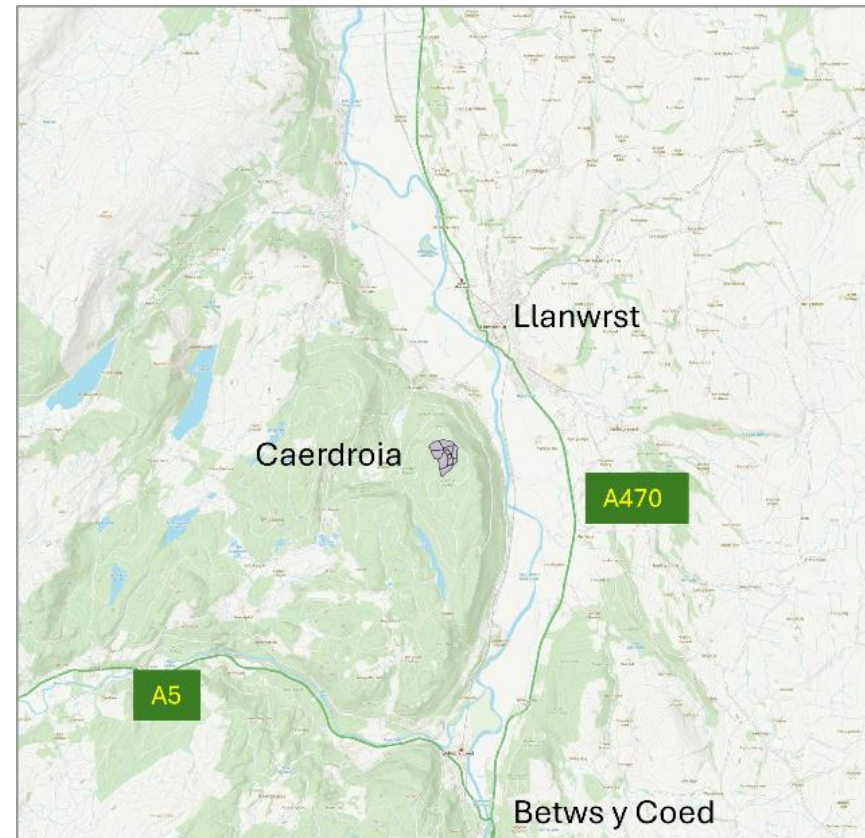
Previous management plans:

- Woodland management plan 2015 - 2020 prepared for Golygfa Gwydyr and included in GG/NRW Woodland Management Agreement (November 2015 to November 2025))
- Formerly included in the Gwydyr Forest Design Plans prepared by Forestry Commission and more lately Natural Resources Wales. The current NRW Plan expires on 30 September 2025 with a successor currently in preparation.

This plan prepared by Jenny Wong, Wild Resources Ltd, July-August 2025



Ynys Uchaf, Mynydd Llandygai, Bangor, Gwynedd LL57 4BZ



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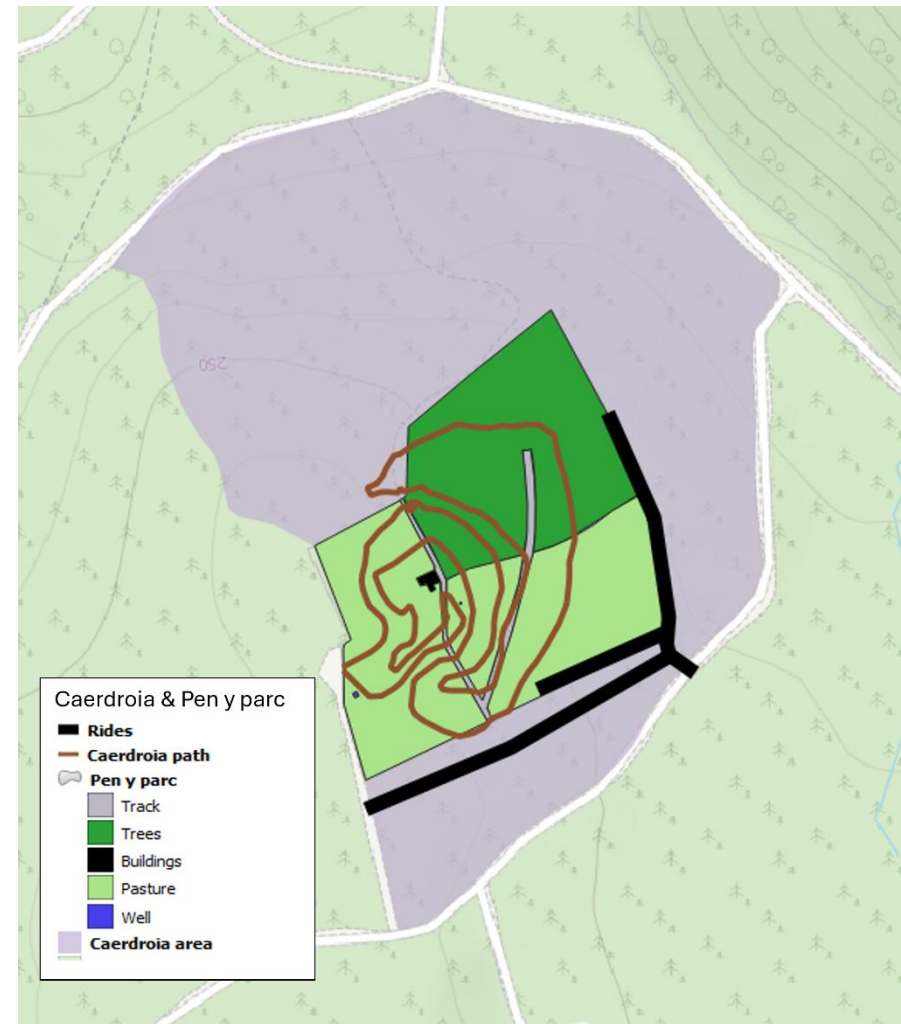
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Overview

The management area known as Caerdroia consists of 11 hectares of woodland centred on Pen y Parc on the crest of the hill forming the Parc Uchaf portion of Gwydyr Forest 1km south south-west of Llanrwst within Eryri National Park. Gwydyr forest is part of the Welsh Government Woodland Estate (WGWE) and Caerdroia (formerly known as Pen y Parc) has been subject to a community management agreement (CMA) between NRW and Golygfa Gwydyr (GG) since 2005. GG is a community group established in 2003 which operates as a social enterprise from premises in Llanrwst.

Caerdroia is centred on the former Pen y parc smallholding which comprises ruined buildings, tracks, wells and several small fields, some pasture and others with trees and likely the former Christmas tree nursery (Appendix 1). Little now remains of Pen y parc, the tracks are gone, the buildings are fenced off and usable and the former walls and fences are no longer effective barriers though the main well remains in use. The area of former pasture is the heart of Caerdroia and has been developed for community use to includes shelter, compost toilet, orchard, pond, forest garden and the beginning of a small tree nursery. Surrounding this core and within Pen y parc GG has laid out a one-mile long labyrinth (Caerdroia) principally as a venue for promenade outdoor theatre. Surrounding the theatre is a belt of forest which is managed for timber and environmental

benefits by the GG woodland management team served by a series of rides and areas set aside for log stacking and timber working.

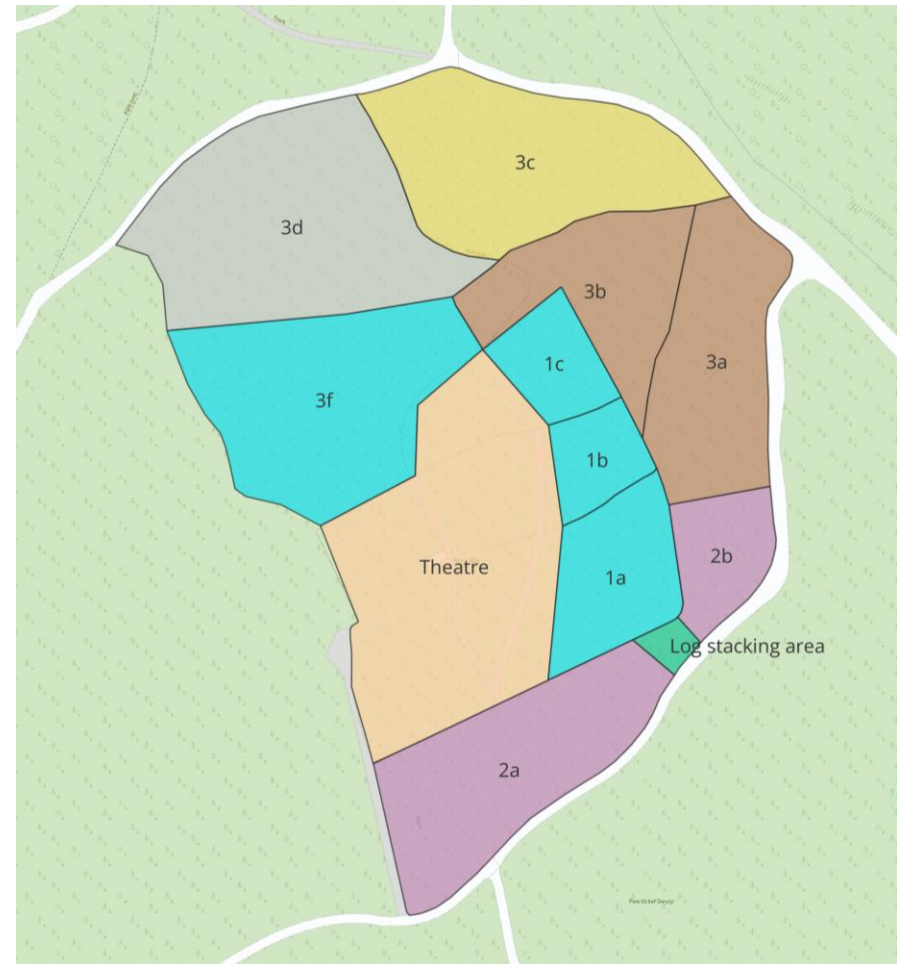


The framework for the forest management plan is division of the area into working units called compartments. These are derived from the sub-compartments as laid out by the Forestry Commission and link with the NRW sub-compartment database which records the planting of mostly coniferous species, mainly firs with some beech in 1962 (Appendix 2). From planting to 2015 when GG commenced activities the stands had been through first and second thinning but due to LISS designation applied from the 2000's was largely left unthinned.

The hilltop is composed of friable shales covered with shallow soils and is exposed to high winds from both the south and north. These conditions mean the large, closely spaced trees are particularly vulnerable to storms. A large swath came down in storm Arwen in November 2021 and again in storm Darragh in December 2024. The exposed edges of windblow are very susceptible to even minor storms so there is the expectation of progressive windblow such that it is likely that all stands on the site will be affected.

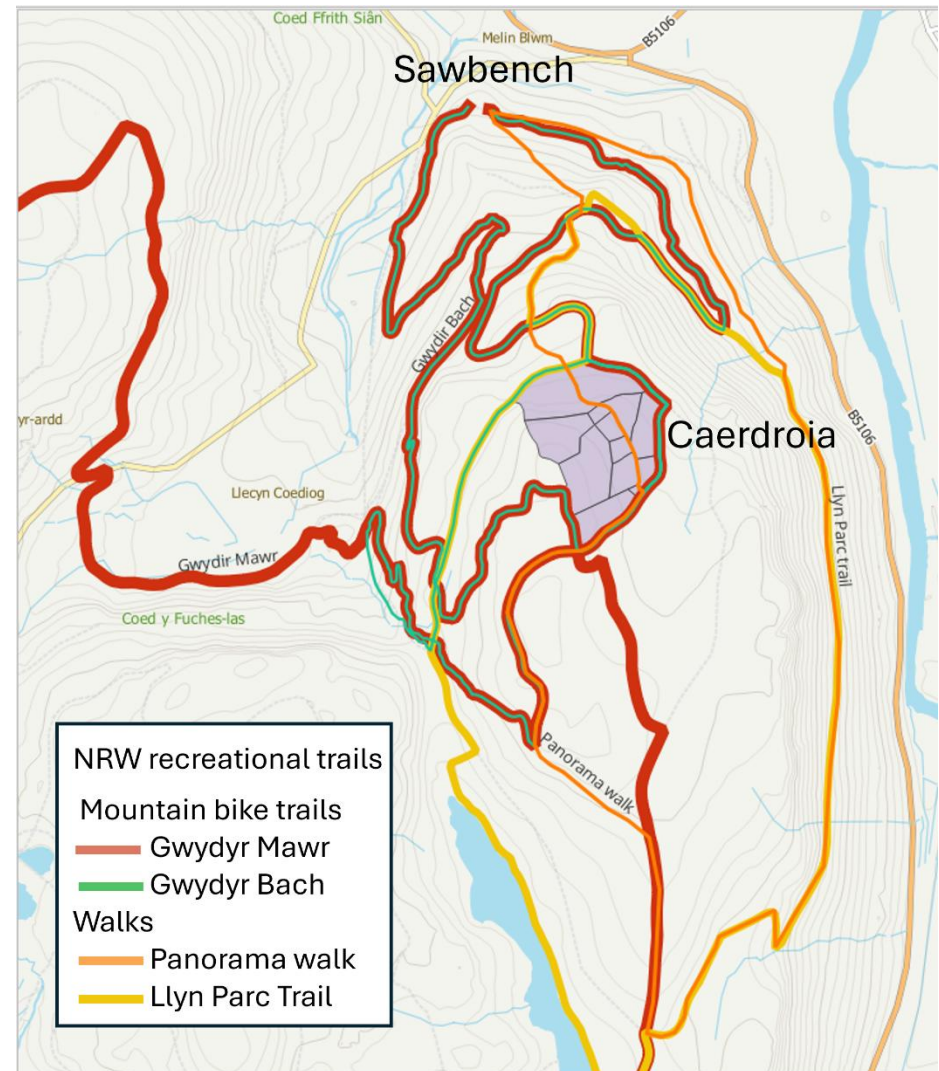
Although much has changed on the site since the original planting it is recommended that the original sub-compartments are retained to provide continuity.

There are minor water courses on the site with a pond, the partially restored farm well, several small springs and a network of drainage ditches.



The whole of Caerdroia is designated Open access under the Countryside Rights of Way Act and is crossed by the NRW Panorama walk recreational trail. The forest roads which bound the northern and eastern flanks of the site and the track to the west are part of the Gwydyr Mawr and Gwydyr Bach MTB trails and the Llyn Parc walking trail.

This management plan provides for management of residual trees and the restoration of forest cover on the site to meet the objectives of GG as agreed with NRW in the CMA.



Threats and constraints

Plant diseases

The previous management plan noted that *Phytophthora ramorum* on larch and Chalara on ash were potential problems. Both have since swept through the area and larch has largely been removed in pre-emptive fellings and much of the ash is dead or dying. Fortunately, this has not had too much impact on the site as neither species was present in any numbers.

Invasive species

Western hemlock was noted as a threat in the previous management plan and the stand of hemlock in compartment 3a & 3b was thinned in 2018 and regeneration periodically cleared. However, western hemlock remains a threat and is likely to be a significant challenge in the coming years as the open areas created by windblow provide favourable conditions for the species coupled with hazardous conditions for control activities, especially by volunteers.

The site is remarkably clear of the more common invasive species such as Himalayan balsam and rhododendron. Introduction of invasive species is most likely to be on vehicles, bikes again and boots – mostly from soil containing seeds lodged in tires and treads. The risk is minimised by the use of only GG vehicles for site visitors and this should be continued with care taken to inspect and clean wheels

when these vehicles are used to visit other sites. NRW and contractors should already be practicing good biosecurity measures.



A different type of risk is planting into the garden on site. In particular, the following potentially invasive plants that have been planted into the garden should be re-considered and ideally replaced with something more appropriate.

- Japanese rose (*Rosa rugosa*) which is listed on Schedule 9 of the Wildlife and Countryside Act in England and Wales which makes it an offence to plant in the wild or cause it to grow in the wild by dumping contaminated soil or plant cuttings.

- Sea buckthorn (*Hippophae rhamnoides*) is also listed on Schedule 9 in Northern Ireland, so although it is not an offense to plant it in the wild in Wales it is not a good idea.
- Cultivated varieties of *Rubus* i.e. raspberry and loganberry. These will spread aggressively if not controlled and will also hybridise with the native blackberry. These are not of great concern but will require constant tending to keep under control. It may be best to consider growing somewhat less aggressive *Ribes* i.e. gooseberry and currants.
- Other species mentioned for the Forest garden may also pose a risk e.g. wild garlic (*Allium ursinum*) which although native can become invasive. Any species brought onto the site should be carefully considered and any which require tending to limit its spread either by seed or runners should be avoided.

Asbestos

The old farmhouse remains securely fenced and now overgrown to prevent people coming into contact with the asbestos that remains within the ruins.

Public access

The previous management plan noted that increased public access could pose a threat to attracting and retaining wildlife and improving the biodiversity of the site. The whole site is Open access and is encircled and crossed by recreational trails and there is increasing use of all trails by cyclists and walkers. NRW have provided a map dated

10 June 2025 indicating the constraints on GG within the Pen y Parc site (App. 2). There are a few inconsistencies in this map: the new Panorama Walk which crosses the site is not indicated while the impassable public footpath route is shown as an easy cycling route. It is advised that this ambiguity of the rights of way across the site are resolved such that the public footpath is re-routed to the Panorama walk. This would require an application by NRW to Conwy Council for an Order to re-route Trefriw footpath 52 as it passes through the site.

Increased public access will increase risk of vandalism – CCTV has been installed on the site and should be active if vandalism is evident and when valuable equipment is on site.

The surface of paths within the site will be maintained by GG to minimise hazards to the public.

Illegal MTB routes

Mountain biking (MTB) is a well promoted and active use of the forest and there are several official trails which pass close to the site. Illegal diversions off these trails run down the western side of the site and on occasion through the site. These illegal trails can be hazardous for inexperienced riders, damaging to the site as the unmade trails on steep ground erode rapidly and noise and disturbance affects wildlife particularly shy nesting birds.



There is at least one site along these illegal side trails which is evidently in use as a picnic site with logs arranged to form a bench and remains of a campfire¹. Fires are high risk to forest especially in spring and summer droughts which appear to be increasingly frequent. The risk is further heightened in windblown forest where fuel loading is high and access is difficult. GG should report all illegal trails and especially fire sites to NRW to agree appropriate mitigation and control measures.

¹ [In August 2025 at SH 79182 60096](#)



Panorama walk

The new Panorama walk is the first recreational trail laid out by NRW which crosses Caerdroia. This is positive as it provides better access to the site on foot from the Saw Bench. The Panorama walk leaflet suggests visitors “walk around and read the information panels explaining the work of the group”. However, the panels and entrance to the Caerdroia are not visible or signposted from where the Panorama walk enters the Caerdroia site. Consideration should be given as to whether to direct unsupervised visitors to walk the

labyrinth or to more simply provide an interpretation panel to the Caerdroia project as a whole. Regardless visitors will wish to walk the labyrinth and signage that this is only for pedestrians should perhaps be provided along with a rack so visitors can safely park their bikes.



Climate change

Increasing CO2 emissions are incontrovertibly driving changes to climate. Forest Research predict that this will have a range of impacts on forestry in Wales². Headline risks of warming in Wales include:

- Increased risk of wind and storm damage, and the occurrence of landslides
- Increased risk of flooding, waterlogging and soil erosion
- Increase in wildlife risk
- Increased spring and summer drought risk
- Later onset of dormancy reduces timber quality (as late season growth is poor quality)
- Earlier bud burst may increase risk of spring frost damage
- Longer, warmer growing seasons that could increase tree growth
- Migration of new pests and pathogens

However, there is increasing concern that the Gulf Stream may collapse³ which could bring extreme cold winters and summer droughts to Wales. Together we can no longer plan forestry as if climate will be the same through the lifetime of the trees. The response to this is to build 'climate resilience' in future forests. Forest

² <https://www.forestresearch.gov.uk/climate-change/advice/official-country-guidance/wales/>

³ <https://www.theguardian.com/environment/2025/aug/28/collapse-critical-atlantic-current-amoc-no-longer-low-likelihood-study>

Research recommendations for Wales⁴ to adapt forestry to climate change are to:

- Adoption of low-impact silviculture (LISS; CCF is an example of such a system) and use of species mixtures
- Where LISS is not used, a wider range of species and genetic material within a species
- Acceptance of natural colonisation of some non-native, naturalised species – but not where conservation is a major objective
- Contingency planning for potential increase in occurrence of catastrophic wind damage, fire, and pest or disease outbreaks.

GG's objectives and approach to forestry are well aligned with these recommendations.

NRW Resources plan

A constraint on the formation of objectives and prescriptions within the GG plan should reflect the objectives and prescriptions. As this GG plan was being prepared the draft NRW Resources plan for North Gwydyr was released for public consultation. This includes many Priorities and Objectives which will be supported by the provisions of the GG plan. We can pick out the following draft Resources plan which will be particularly relevant to the GG plan:

- Where possible use thinning and LISS management to help achieve PAWS restoration targets by removing invasive non-native tree species such as Western Hemlock. Promote natural regeneration of native species where possible.
- Improve the visual and sensory and landscape habitat value of the forest by increasing natives and diversifying the woodland.
- Engage with communities, land owners and interested stakeholders through 'Llifo Conwy', a collaborative catchment scale approach to working with the environment, nature, culture, heritage and landscapes, of which Gwydyr forest is a major part of.
- Continue working in partnership through a 'Future Forest Vision' with Golygfa Gwydyr community group and allow for further management agreements which may cover a larger forest area.

However, there is some mismatch in the designation of the compartments making up the GG CMA area in the Felling Strategy - where areas are marked for clear felling in the future which are already extensively windblown.

Of more concern is the draft Forest types and restocking plan. This indicates three Forest types for the Caerdroia area:

⁴ <https://www.forestresearch.gov.uk/research/climate-change-adaptation/adapting-forests-and-woodlands-in-wales-to-climate-change-findings-and-recommendations/>

Type of forest	GG Cmpt	Prescription
Mixed woodland predominantly broadleaf	Theatre, 1a, 1b, 1c, 2b, 3a & 3f	Native broadleaves (preferably locally native) with some conifers (for example redwood). Ancient woodland sites and new native woodlands are included in this category. > 50% broadleaf
Mixed woodland predominantly conifer	3b, 3c & 3d	Non-native trees, mostly conifer for timber production. Trees could include Douglas fir, Norway spruce, redwoods with oak and sweet chestnut. > 50% conifer
Upland Wales – Lower exposure	2a	Conifers for timber production. Douglas fir, western red cedar, Japanese red cedar and sequoias. Grand fir and noble fir > 50% conifer

For the two types which are intended to be > 50% conifer appear to be in contravention of the designation of all but the central area of Caerdroia as PAWS which requires gradual conversion to native broadleaves which is supported by the GG silvicultural prescriptions. The consultation should be used to make representation that it may be more appropriate for the whole of the GG CMA area to be designated as Mixed woodland predominantly broadleaf.

Long term objectives

The objectives of GG for the site are unchanged from the 2015-2020 plan and are to:

- Improve access to and within the site for community use
- Utilise the site and its timber as a community resource
- Restore tree cover to native deciduous
- Improve habitat and biodiversity
- Adopt Natural Flood Measures where feasible

Strategy

Central community use area

Since 2010 the central area of the site which was formerly the pastures of the Pen y Parc holding has been developed as a multiuse community space. This now comprises the following facilities:

- New pond
- Young orchard of north Wales apple varieties
- Forest garden area comprising stone bordered beds of fruit bushes and young trees
- Area intended for development as a micro tree-nursery
- Shelter and seating
- Compost toilet

These facilities are used in a variety of ways and provide well-being benefits to groups drawn from the local community and visitors.

A little distance away is an area set up for log processing.

These facilities have been developed to meet the needs of volunteers and the expressed wishes of volunteers and community visitors. As such they have great value but limits should be set on how far this can extend and development should be in keeping with the sites remote location deep in the forest.



Caerdroia

The labyrinth will be maintained for use as an outdoor theatre space. Originally the caerdroia was a winding path deep in the forest, under trees with little visibility from one turn to another. Strung along the path were installations such as the Giant's chair and table which formed distinct performance spaces. Windblow, particularly during storm Darragh has greatly changed the appearance and ambience of the caerdroia. The installations need maintenance, the path though cleared runs through areas of tangled fallen trees, bramble thickets and for much of its length no longer feels enclosed by forest.



The Caerdroia as it was, is gone which is a shame but this is also an opportunity for regeneration and to develop in a different direction. Planning the details of the tending of the Caerdroia is a matter for GG and consultation with theatre providers and other creatives. However, we can propose a few suggestions:

- Consider creating visual barriers between the loops of the path – especially where these are close in the centre of the Caerdroia using yew. This is a little used and under-appreciated native conifer species. Seed can be sourced locally, the trees grow quickly and can be easily cut into formal hedges where needed and left to grow wild elsewhere to signify the transition from ‘civilisation’ to ‘nature’.
- Consider planting aspen which has recently been found on site in a swath to create a distinctly different woodland habitat. Aspen is native, fast growing, has a light canopy, the leaves flutter and make a distinctive ‘chattering’ sound and turn a bright clear yellow in autumn. Most significantly they are a keystone species which will provide habitat for a wide range of biodiversity.
- Consider varying the immediate border to the path as well as the canopy and maintaining the occasional view out of the forest to provide variety in texture, colour, sound and smells.

Access for theatre performances is strictly regulated with limited capacity and use of GG’s minibus to bring people to the site. GG will operate a minibus (either its own or contracted minibus hire) from Gwydyr Uchaf to the Caerdroia site. Performances will be scheduled

over 4 – 6 hours so that there is a maximum of 30 people on site with an average performance catering for 60 – 80 people each day/evening.



Performances may require the construction of temporary performance spaces which will be managed within the performance and site specific risk assessments. All temporary structures will be subject to approval at the quarterly or pre-performance review meetings with NRW area office staff. Any structures/shelters designed to out-live the scheduled performance will be subject to review at the quarterly meeting. During the set-up, running, and take down of each performance GG may establish a security officer to remain on site for the duration. Arrangements for this will be agreed with NRW area office staff beforehand.

Silviculture

NRW forest designations:

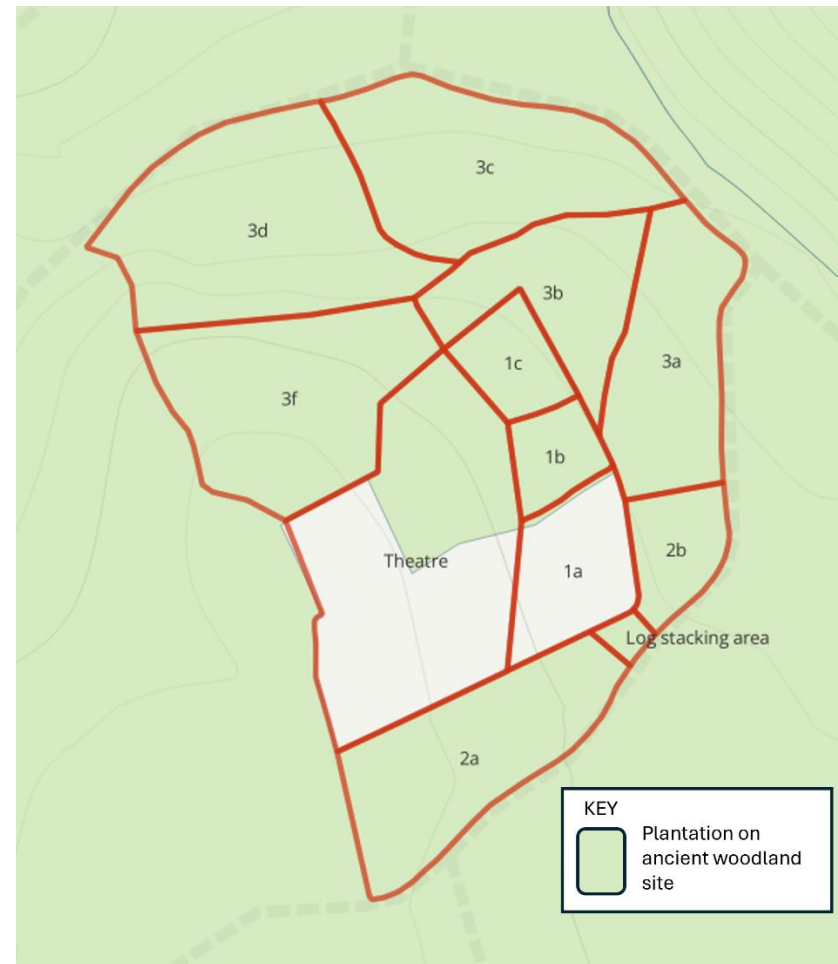
Primary land use: High forest PHF / PHE

Habitat type: Broadleaves – Mixed/Yew woodlands

In the 2021 update of the ancient woodland maps, the whole area except for the three pasture fields of Pen y parc are designed as plantation on ancient woodland site (PAWS). Under current Welsh government forest policy these areas should be managed with a presumption of restoration of native broadleaf species. More specifically the North Gwydyr Resources plan notes that “These sites have been wooded since 1600 or longer and our management will be to preserve the woodland. If conifers are present, we will gradually convert these plantations to broadleaf woodland, encouraging the native flora. Key species – dormice, bats, wood ants, marsh / willow tit, wood warbler”

It is clear the intention is that change should be gradual. However, much of the area has blown down which has brought forward considerations of the type of native woodland and species to create on the site. The existing ground vegetation, soils, altitude and native species naturally regenerating on site give a good guide on what to expect and which species should be promoted. Within Caerdroia there is scope for upland birch/oak woodland with the emphasis on birch for the first decades, upland ash/elm woodland though diseases in both species means this is unlikely to materialise for some time.

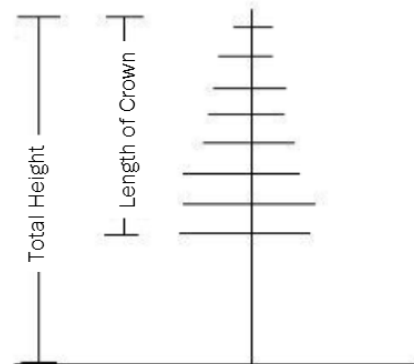
Hazel woodland is also possible are the rarer yew and aspen woodland. Broadleaf non-native species such as chestnut, sycamore and beech can also be appropriate. Conifers from the surrounding forest will also appear on the site. Except for western hemlock these can be accepted in modest quantities to create a vibrant mixed forest.



The overall long-term goal is to create a forest made up of a mix of species and sizes with a naturalistic vertical and mosaic structure. The vision is of a forest which is attractive for community use, is a functioning habitat for wildlife and meets local needs for wood and timber.

Silvicultural operations appropriate to creation of continuous tree cover will be applied. This will be sensitive to the requirements of the species present and prescriptions can vary between sub-compartments and may include coppice as well as high forest.

Thinning to enhance stand stability should be applied to established stands alongside thinning to enhance individual tree growth. Forestry thinning tables are only useful for compartment scale operations on uniform stands. Thinning will therefore seek to maintain the optimal live crown ratio for each species (which is dependent on the species'



5

https://cdn.forestresearch.gov.uk/2011/01/silviculture_thinning_guide_v1_jan_2011.pdf

tolerance of shade) so a shade-tolerant species will have a higher live crown ratio than a shade-intolerant one in the same stocking density. The live-crown ratio is the proportion of the total height of the tree which supports *green* i.e. live foliage. Other considerations such as reduction of between-tree competition by removing trees which have crowns interfering with each other, have misshaped crowns or which have poor form (e.g. leaning) or damaged trunks. Care should be taken to maintain canopy cover which means in many cases sub-optimal trees will need to be retained.

Marking for thinning should follow recommendations in the Forestry Commission "Thinning practice: A silvicultural Guide"⁵

Restocking will be by natural regeneration augmented with planting of rarer native species (e.g. aspen and wild apple) and broadleaf timber species particularly chestnut. Young trees will be respaced as needed to aid the growth of healthy trees, western hemlock will be controlled throughout with suppression of bramble and bracken in the early stages of restocking. Successive thinnings will be used to open the canopy to allow selected crop trees to develop and to facilitate regeneration.

Halo thinning around established but suppressed veteran broadleaf trees will allow them to act as a seed source for natural regeneration

and by raising plants in a micro tree nursery (Appendix 3) for restocking elsewhere on the site.

The decision to fell trees is not to be based solely on their timber value but on maintaining the health of the woodland in line with the silvicultural recommendations. Timber that is felled and extracted is for use on site, by the local community as firewood and to support local timber businesses.

Windblown trees will be cleared only as necessary for safety, to minimise the visual intrusion of upturned root plates close to the paths or to facilitate replanting.

Creation and maintenance of glades and paths will encourage a range of light loving species improving the prospects for insects and hence bird populations.

Monitoring and review

Site inspections

Area office staff will meet with GG quarterly for a formal review of operations under the management plan. The review will include site inspections and all certificates of competence. Particular items of safety and risk will be logged such as condition of public access routes, dead/dying trees, windblown trees and illegal use of site e.g. for MTB, campfires and temporary shelters.

Record keeping and reflection

Progress against the action plan and outcomes of management prescriptions should be logged as previously. Reflections on progress should then inform the next management plan which should be prepared in 2029 to avoid a hiatus in the management plan.

Monitoring against objectives

This is concerned with tracking progress against the long-term objectives. This is important so as not to lose sight of the purpose of GG's CMA. Effective monitoring need not involve a lot of investment or time but does require bringing together indicators and presentation of these to GG for discussion. GG should consider selecting suitable indicators and designing a suitable reporting schedule.

Appendix 4 summarises the biodiversity records for Caerdroia taken from the 2015-2020 management plan, baseline surveys in 2016 and 2019, bioblitzes in 2023 and preparatory site visits for the present management plan. These lists are rather short given the range of habitats on the site and there are few conclusions that can be drawn from these data. It is suggested that biodiversity monitoring is both more regular and focussed on detecting changes in species presence for specific indicator taxon. An example of a simple survey for bird diversity using an app is given in Appendix 5. Other surveys which could be done using standard protocols and support from taxon

specialists could be moth trapping, pollinator surveys, bumblebee surveys, wildflowers.

Suggested indicators for the main objectives might be:

Objective	Indicator	Data sources
Improve access for community use	Number of visitors	Event attendance, volunteer time sheets, footpath counter
Utilise timber as a community resource	Volume of timber produced Number of employees/trainees/volunteers in forest operations	Waybills from NRW sales GG records
Restore native deciduous	Area containing native deciduous trees (accepting that conifers will remain part of the forest)	Number and species of trees planted Forest operations esp. thinning
Improve habitat & biodiversity	Number of species present (Appendix 5) Evidence of breeding, natural regeneration and succession to natural forest structure	Number of bird species (see App 3) Repeat bioblitz, fungi forays etc
Natural flood measures	Evidence of water retention on site	Colonisation by wetland species



Purple toadflax (*Linaria purpurea*)

Management prescriptions

Sub-cmpt	Current condition	Prescription
Theatre	Entrance to site and labyrinth	Plant hedges and/or provide signage to make it clearer how visitors should move around site
	Forest garden	Consider potential risks posed by species introduced into garden – remove species known to be invasive particularly <i>Rosa rugosa</i> and sea buckthorn.
	Pond SH 79295 60020	General maintenance – monitor for invasive species.
	Labyrinth	Keep path clear and surface in good condition. Consider use of dead hedges and planting of yew to create barriers between paths in the centre of labyrinth. Consider varying restocking and vegetation management along the path in response to microsite conditions as indicated by ground vegetation e.g. by matching tree species to microsite as indicated by lady fern (shadier and damper), great hairy wood rush (more base rich), bracken (good soils) and bilberry/heathers (acidic) etc..
	Orchard	Cut grass on a regime suited to encouraging wildflower i.e. cut late in season Mulch trees to reduce weed competition and prune as required to stimulate fruit production. Consider planting a few true <i>Malus sylvestris</i> within orchard both because this is a native species and it serves as a universal pollinator.
	Well SH 79257 60026	Clean out debris and weeds Consider pumping water into IBC to supply tree nursery
	Tree nursery	Consider introduction of 'air prune beds'
	Compost toilet SH 79258 60059	Keep stocked with sawdust and hand sanitiser. Clean and maintain on a regular schedule. Monitor 'out of hours' use.
	Shelter SH 79283 60004	Maintain structure
	Ancient hawthorn SH 793331 60067	This is between two loops of the labyrinth and visible from both sides. The tree is being overshadowed by neighbouring conifers. Halo thinning would be the usual

		recommendation but there are few trees left – so suggest high pruning conifers to reduce shading on hawthorn and branches becoming tangled. Clear or reduce density of suckering prunus (damsons?) to provide view into hawthorn.	
	Giant's table	Perhaps repair or replace bowl? Plant birch to recreate the sense of a 'room' around the Giant's chair.-	
	Fenced off Pen y Parc buildings	Maintain fences	
1a	Standing conifers with some windblow	Thinning could perhaps be used to save the best trees but is not certain to succeed so this is not a high priority action.	Maintain ride for use by pedestrians on the Panorama walk. Reduce upturned root plates within vicinity of labyrinth. Extract timber where feasible as ride passes through these compartments
1b	Standing trees	Monitor stand stability and consider careful thinning if stand proves to be stable and trees show signs of suffering from crowding i.e. crown depth becomes less than 50% of total height. Stand may not require thinning within 5 year plan.	
1c	Standing trees	This area likely to blow down. Introduce aspen to link with planting in compartment 3c and to create an aspen 'room' on the labyrinth.	
2a	Dense trees alongside road, windblow towards labyrinth. Good natural regeneration present – area is easily accessible for timber working.	Clear fallen trees Protect and encourage natural regeneration of birch and oak, accept regeneration of other native species. Accept regeneration of firs and beech – but monitor and reduce If they begin to dominate the site – this allow applies to holly. Remove western hemlock.	
2b	Dense trees – area most protected from windblow.	Carefully thin to favour windfirm trees.	
3a	Compartment has been windblow and forms a slope with two depressions, the lower	Pile fallen logs and root plates to form leaky dams, scoop out the depressions so they will hold pools in winter and marshy areas in summer. This looks relatively straightforward in the lower depression as there is easy access from the road but may also be feasible in the higher one.	

	of these just above the forest road holds water in the winter.	Consider re-stocking close to pools with aspen – natural regeneration will likely bring in other species – elm and ash regeneration is present in upper portion and should be protected even though it may succumb to disease in later life.
3b	Extensive windblow which has created expansive views across the Conwy valley from the Panorama walk.	Create and maintain glades which will require cutting back vegetation to favour grass and wildflowers Restock with the intention of coppicing to maintain the open views. Coppice could be of hazel or willow but worth trying sweet chestnut as there are some young trees on site which appear to be doing well. Chestnut is likely to be in high demand as a source of fence posts and palings.
3c	Windblow of large trees and correspondingly large root plates. Ground vegetation indicates less acidic soils even though these are thin.	Aspen is present immediately across the road where it is highly compromised by the shade of the well grown and stable conifer stand. Suggest clonal propagation of this tree so it can be moved across the road and planting the compartment with aspen. This will grow very quickly and create a very unique woodland at the most prominent part of Caerdroia.
3d	Windblow with more surviving trees than 3c.	Clear timber and root plates as feasible starting from road and working upslope. Focus on creating access into compartment 3f from below. Accept natural regeneration except for western hemlock.
3f	Dense stand of advance natural regeneration of birch, western hemlock, oak and other species	This is ready for respacing leading up to first thin. Racks will need to be cut to gain access to the stand. There is a risk that racks will be used by MTB so to minimise risk the compartment will be accessed from below and a dense barrier left along top edge. Remove western hemlock. In respacing favour the best trees and accept firs and larch and favour oak. The stand will end up largely birch – this can be managed as an attractive productive woodland but will require hard thinning as birch needs deep crowns (60% of height of tree) to maximise growth. A cover of birch will provide shelterwood for other species such as oak. Stand should be managed as CCF but on a fairly short cycle to keep trees short to reduce the risk of future windblows.

NRW compartment 1064d – across the road from GG compartment 3c contains an aspen. This is a native species which is unlikely to have been planted in the 1960's when the area was stocked with conifer by the Forestry Commission and so is perhaps a survivor from at least the earlier Gwydyr High Park. Aspen does not do well in shade particularly of conifers and is present as just a few thin, rather straggly stems close to the edge of the road. The roadside has some logging brash and a log pile which is smothering the aspen suckers. It is suggested that GG approach NRW to see if it might be possible for GG to clear the area around the aspen to give the suckers a chance to grow on.



Action plan

To be completed after consultation between GG and NRW.

Compartment	2026	2027	2028	2029	2030	2031
Theatre						
1a						
1b						
1c						
2a						
2b						
3a						
3b						
3c						
3d						
3f						
Monitoring						

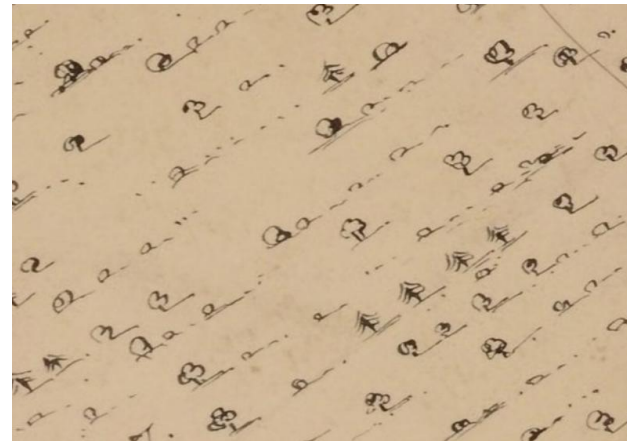
Appendix 1 - Parc Uchaf Gwydir & Pen y Parc

The National Library of Wales provides online access to two sets of historical maps the 1840 tithe maps and the 1888-1913 OS maps. These were consulted to give further historical context to the site.



Tithe map 1840

In 1840 the forest was very much smaller than it is now and largely confined to the western flank of the Dyffryn Conwy adjacent to Gwydyr Castle. The large block of Parc Uchaf Gwydyr is listed as Field 37, was described as 'Plantation' and noted as managed in hand by the owner Lord Willoughby de Eresby (Peter Robert Drummond) who was also the 2nd Baron Gwydyr. The symbols on the map appear to indicate the forest was a mix of broadleaves, conifers and perhaps shrubs or young trees. Most notable is that Pen y Parc doesn't appear on this map. This is suggestive that the holding was there or at least wasn't occupied at this time. Further archive work might reveal more of the species composition and silviculture of this early plantation and why Pen y Parc was located on the top of the hill within the forest.



By the 1890's the more detailed OS maps clearly indicate the presence of Pen y parc on what is called Gwydyr High Park. However, it is also apparent that although four small fields are indicated that

the one to the NW is shown as containing at least an area of conifers. In the 1990's the Forestry Commission used Pen y Parc as a Christmas tree nursery and it is interesting to speculate that this may have continued earlier use of this field as a conifer nursery. This area also

contains damson trees and some large open grown hawthorn which is also suggestive this area had trees. The three other fields remained open until their incorporation into the CMA.



1888-1913 OS map

Appendix 2 – Previous management plan records

NRW Design plan (pre 2025)

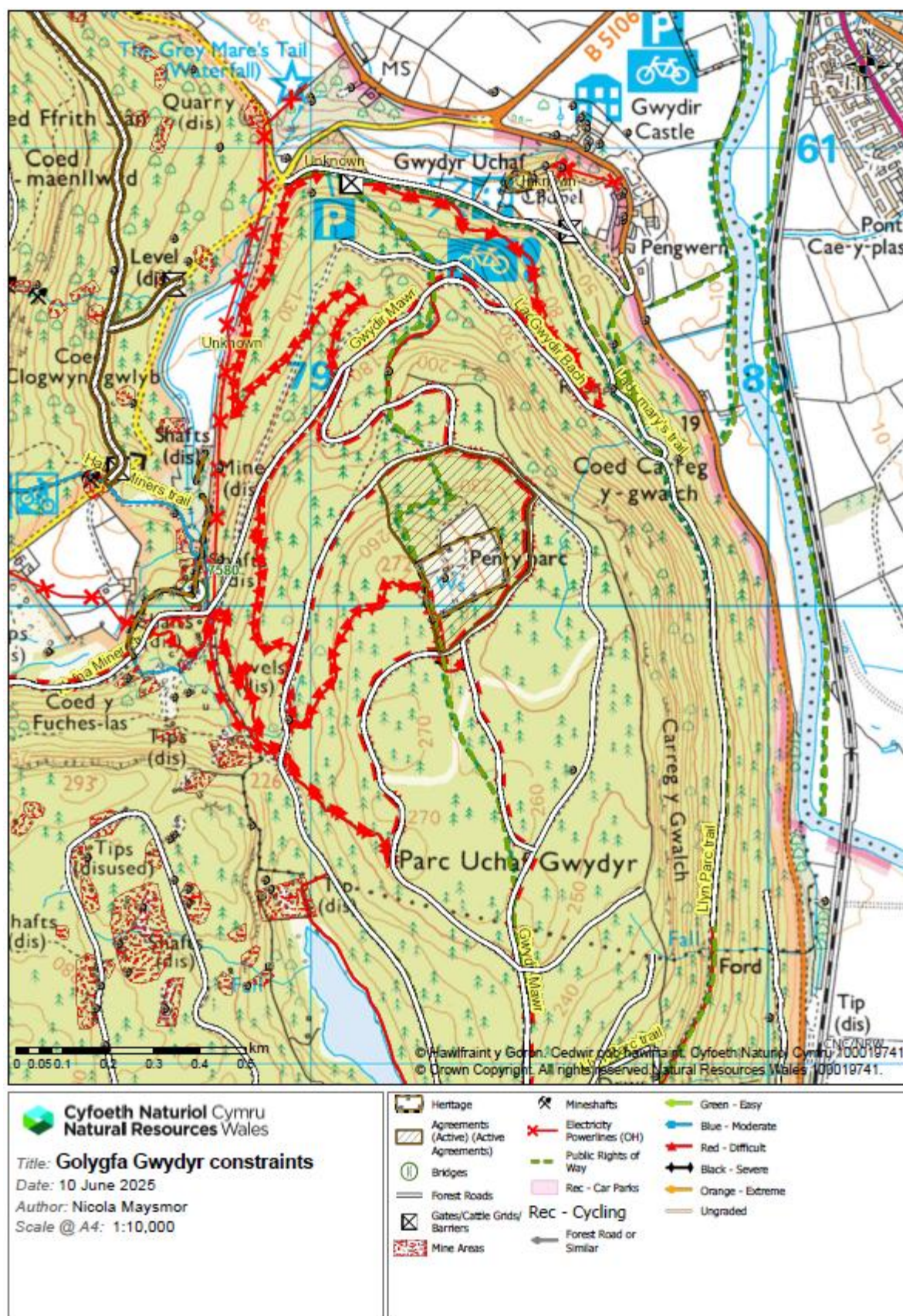
GG cmpt	NRW cmpt	NRW sub-cmpt database record				Operations
		Species	%	Yield class	P year	
Theatre	1067 F	Douglas fir	100	12	1997	
1a						
1b						
1c						
2a	1067 I	Sitka spruce	67	20	1962	Clear felling post 2037
2b		Birch	13	4	1980	
Log stacking area		Sitka spruce PHF	13	20	1980	
3a	1067 J	Sessile oak	50	4	2025	
		Downy birch	50	4		
3b	1067 M	Noble fir	53	18	1962	
		Noble fir	37	22	1962	
		Western hemlock	5	16	1962	
3c	1067 E	Grand fir	70	20	1962	
3d		Grand fir	20	20	1962	
		Beech	10	4	1972	
		Windblow				
3f	1067 G	Felled				Restock

Prescriptions in 2015-2020 plan

Overall objective	Management objectives	GG sub-cmpt	Operational details
Public access & site use	Prepare entertainment and recreation area	2b	Remove as few trees as possible that interfere with the installations needed in the area. Remove stumps that present a hazard.
	Establish and clear rides	1, 2a Stacking area 3c	Create track for vehicle access by removing trees, stumps, large rocks, clearing and creating drainage channels and levelling surfaces. Create vehicle access point.
	Path maintenance	2b, 3, Theatre All site	Establish paths & tracks. Strim paths and tracks. Repair surfaces as necessary.
Site maintenance	Clear windblown trees to establish access	Stacking area Theatre 1, 2a All sites	Remove windblown and damaged trees in co-ordination with thinning operations taking into account paths and installations. Extraction may not be appropriate so if arising's are left, they must be in a state that could not pose a risk to the public
	Maintain & improve drainage	2b, 3	Clear and repair existing drainage ditches and install new drainage systems where necessary taking account of where new drainage will load or interfere with surrounding systems. Later changed to retain water on site
	Boundary maintenance	1a, 1b Theatre	Remove derelict fencing. Lay neglected hedges. Clear around dry stone walls and rebuild those that provide useful or historic boundaries and amenity value.
Silviculture	Felling & replanting	Theatre	Remove section of screening trees leaving max 20 trees to create uneven age structure. Replant felled areas with a mixture of small broadleaved species.
	Respacing	2b, 3 Theatre	Respace natural regeneration to favour a broad mix of species and age and encourage good growth.
	Thin established stands	1	Thin Douglas fir to favour healthy straight trees and broadleaves, open the canopy and encourage natural regeneration.
		2	Thin Sitka spruce (max 10%)
		3a, 3b, 3e	Thin western hemlock (max 10%)

Overall objective	Management objectives	GG sub-cmpt	Operational details
	Halo thinning of broadleaf trees	1, 3e	Removal of trees competing with established broadleaf species as long as it does not overly expose the trees.
	Clear invasive regeneration	2b, 3	Clear western hemlock regeneration.

Appendix 3 - NRW Golygfa Gwydyr constraints



Appendix 3 – Developing a micro-tree nursery

Within the gardens of the central area there are two small raised beds which were intended as the beginnings of a tree nursery. The aim was raise young trees from seed collected on site to augment natural regeneration. Since the windblow there is an increasing need for suitable trees to re-stock the site. Within the constraints of the site it would not be feasible to turn back time and create a sizable tree nursery. However, the existence of the well means it would be feasible to produce a modest number of trees without too much difficulty or cost using the “air prune bed” system. In this system tree are grown in deep wooden compost-filled boxes raised on legs with a mesh base so the trees are air-pruned. This is a system developed in the USA and used to good effect by the Coed y Tor Trees in Cowbridge.

This system is ideal for large seeded species which are best sown in the autumn e.g. oak, chestnut and hazel. The seeds are well spaced and can be left in the beds for up to two years. The bed is then dismantled and the trees lifted out as bare-root transplants. Mesh lids are advisable to keep birds and mice off. The beds do not need much tending except for watering in dry weather and applications of liquid plant feed.

At Caerdroia, water could be pumped from the well into an IBC and supplied via a sprinkler or soaker hose to the beds using a solar-powered pump connected to a hygrometer in the bed.

Compost can be bought in or made on site from bark, sawdust, leaves etc..

Further information is readily available using a internet search with the terms “air prune beds” – a range of different configurations are shown in <https://growingfruit.org/t/building-an-air-prune-bed/45471/11>

Coed y Tor Facebook post 11 Nov 2024

Here's a bed of hazels. One side of the beds is removeable to help access the root systems and lift them out with minimal damage and effort.

This 1m² bed grew 200 trees, 165 trees ready for their final planting and 35 which will be grown on for another year.



Appendix 4 – Site species records

Taxon	Scientific Name	Common Name	2015 plan	Baseline survey 2016	Repeat Survey 2019	Bio-blitzes 2023	WRL 2025
Amphibians	<i>Bufo bufo</i>	Common Toad				X	
	<i>Lissotriton helveticus</i>	Palmate newt				X	
	<i>Rana temporaria</i>	Common Frog				X	
Birds	<i>Acanthis cabaret</i>	Lesser Redpoll				X	
	<i>Aegithalos caudatus</i>	Long-tailed Tit					X
	<i>Certhia familiaris</i>	Treecreeper					X
	<i>Corvus corax</i>	Raven				X	X
	<i>Cyanistes caeruleus</i>	Blue Tit					X
	<i>Delichon urbicum</i>	House martin				X	
	<i>Dendrocopos major</i>	Greater Spotted Woodpecker				X	X
	<i>Erithacus rubecula</i>	Robin				X	X
	<i>Fringilla coelebs</i>	Chaffinch					X
	<i>Garrulus glandarius</i>	Jay					X
	<i>Larus marinus</i>	Great black-backed gull					X
	<i>Loxia curvirostra</i>	Crossbill				X	
	<i>Muscicapa striata</i>	Spotted Flycatcher					X
	<i>Periparus ater</i>	Coal Tit					X
	<i>Prunella modularis</i>	Dunnock					X
	<i>Regulus ignicapillus</i>	Firecrest					x
	<i>Regulus regulus</i>	Goldcrest				X	X
	<i>Sitta europaea</i>	Nuthatch					X
	<i>Spinus spinus</i>	Siskin					X
	<i>Sylvia atricapilla</i>	Blackcap					X
	<i>Troglodytes troglodytes</i>	Wren				X	X
	<i>Turdus merula</i>	Blackbird					X
	<i>Turdus philomelos</i>	Song Thrush					X
Broadleaf tree	<i>Acer campestre</i>	Field maple					X
	<i>Acer pseudoplatanus</i>	Sycamore	X				x
	<i>Alnus glutinosa</i>	Alder	X				x
	<i>Betula pendula</i>	Silver Birch	X				x
	<i>Betula pubescens</i>	Downy Birch					X
	<i>Betula sp.</i>	Birch	X				X
	<i>Carpinus betulus</i>	Hornbeam					X
	<i>Castanea sativa</i>	Sweet Chestnut					X
	<i>Coryllus avellana</i>	Hazel	X				X
	<i>Crataegus monogyna</i>	Hawthorn	X				X
	<i>Fagus sylvatica</i>	Beech	X				X

Taxon	Scientific Name	Common Name	2015 plan	Baseline survey 2016	Repeat Survey 2019	Bio-blitzes 2023	WRL 2025
	<i>Fraxinus excelsior</i>	Ash	X				X
	<i>Ilex aquifolium</i>	Holly	X				x
	<i>Malus sp.</i>	Domestic apples					X
	<i>Populus tremula</i>	Aspen					X
	<i>Prunus avium</i>	cherry					X
	<i>Prunus domestica</i>	Plum	X				X
	<i>Prunus spinosa</i>	Blackthorn	X				x
	<i>Pyrus sp.</i>	Domestic pears					X
	<i>Quercus sp.</i>	Oak	X				X
	<i>Salix caprea</i>						X
	<i>Salix fragilis</i>	Crack Willow	X				x
	<i>Salix sp.</i>	Willow	X				X
	<i>Sambucus nigra</i>	Elder					X
	<i>Sorbus aucuparia</i>	Rowan	X				X
	<i>Ulmus glabra</i>	Wych Elm					X
Mosses	<i>Bryum archangelicum</i>	Small-mouthed Thread-moss					X
	<i>Dicranum majus</i>	Greater Fork-moss					X
	<i>Eurhynchium striatum</i>						X
	<i>Sphagnum sp.</i>	Peat moss		X	X		X
	<i>Thuidium tamariscinum</i>	Tamarisk moss					X
	<i>Zygodon conoideus</i>	Lesser Yoke-moss					X
Coniferous trees	<i>Abies grandis</i>	Grand Fir	X				x
	<i>Abies procera</i>	Noble Fir	X				x
	<i>Larix kaempferi</i>	Japanese Larch	X				x
	<i>Picea abies</i>	Norway spruce					X
	<i>Picea sitchensis</i>	Sitka Spruce	X				X
	<i>Pseudotsuga menziesii</i>	Douglas Fir	X				X
	<i>Tsuga heterophylla</i>	Western Hemlock	X				X
Ferns	<i>Asplenium scolopendrium</i>	Hart's tongue fern					X
	<i>Athyrium filix-femina</i>	Lady-fern					X
	<i>Blechnum spicant</i>	Hard-fern			X		X
	<i>Dryopteris affinis</i>	Scaly male fern		X	X		X
	<i>Dryopteris dilatata</i>	Broad buckler-fern		X	X		X
	<i>Dryopteris felix-mas</i>	Male fern		X	X		X
	<i>Pteridium aquilinum</i>	Bracken		X	X		X
Mushrooms	<i>Calocera viscosa</i>	Yellow Staghorn				X	
Herbs	<i>Ajuga reptans</i>	Bugle			X		X
	<i>Alliaria petiolata</i>	Garlic Mustard					X
	<i>Astilbe sp</i>	Japanes Astible?					X

Taxon	Scientific Name	Common Name	2015 plan	Baseline survey 2016	Repeat Survey 2019	Bio-blitzes 2023	WRL 2025
	<i>Chamaenerion angustifolium</i>	Rosebay willowherb		X	X		X
	<i>Circaea lutetiana</i>	Enchanter's nightshade			X		X
	<i>Cirsium palustre</i>	Marsh thistle			X		X
	<i>Digitalis purpurea</i>	Foxglove			X		X
	<i>Epilobium sp</i>						X
	<i>Filipendula vulgaris</i>	Dropwort					X
	<i>Galeopsis bifida</i>	Lesser Hemp-nettle					X
	<i>Galium aparine</i>	Cleavers / Goosegrass					X
	<i>Galium saxatile</i>	Heath bedstraw			X		X
	<i>Geranium robertianum</i>	Herb robert			X		X
	<i>Hypericum androsaemum</i>	Tutsan					X
	<i>Hypericum perforatum</i>	St John's wort			X		
	<i>Lapsana communis</i>	Nipplewort					X
	<i>Linaria purpurea</i>	Purple Toadflax					X
	<i>Lotus corniculatus</i>	Birdsfoot trefoil			X		
	<i>Lotus pedunculatus</i>	Greater Bird's-foot-trefoil					X
	<i>Lysimachia nemorum</i>	Yellow pimpernel			X		
	<i>Origanum vulgare</i>	Marjoram				X	
	<i>Oxalis acetosella</i>	Wood sorrel		X	X	X	X
	<i>Papaver cambricum</i>	Welsh poppy					X
	<i>Potentilla erecta</i>	Tormentil			X		
	<i>Prunella vulgaris</i>	Selfheal					X
	<i>Ranunculus flammula</i>	Lesser Spearwort					X
	<i>Ranunculus repens</i>	Creeping buttercup		X	X		X
	<i>Rheum rhabarbarum</i>	rhubarb					X
	<i>Rumex acetosa</i>	Common Sorrel				X	
	<i>Stellaria holostea</i>	Greater stitchwort			X		X
	<i>Urtica dioica</i>	Nettle					X
	<i>Veronica chamaedrys</i>	Germander Speedwell					X
	<i>Veronica montana</i>	Wood Speedwell					X
	<i>Veronica officinalis</i>	Heath Speedwell			X		
	<i>Veronica officinalis (repens)</i>	Creeping Speedwell			X		
	<i>Viola riviniana</i>	Common Dog-violet					X
Insects & spiders	?	Harvestman				X	
	?	Pseudoscorpion				X	

Taxon	Scientific Name	Common Name	2015 plan	Baseline survey 2016	Repeat Survey 2019	Bio-blitzes 2023	WRL 2025
	<i>Abax parallelepipedus</i>	Abax beetle				X	
	<i>Agabus bipustulatus</i>	Common Black Diving Beetle				X	
	<i>Andricus foecundatrix</i>	Artichoke gall wasp (on Oak)					X
	<i>Aphantopus hyperantus</i>	Ringlet			X		
	<i>Apis mellifera</i>	Honey bee					X
	<i>Bombus lucorum</i>	White-tailed bumblebee					X
	<i>Coelotes terrestris</i>	Motherphage spider				X	
	<i>Forficula auricularia</i>	Earwig				X	
	<i>Glomeris marginata</i>	Pill millipede				X	
	<i>Machilidae</i>	Bristletail				X	
	<i>Maniola jurtina</i>	Meadow brown			X		
	<i>Meta menardi</i>	Cave spider				X	
	<i>Neuroterus quercusbaccarum</i>	Spangle gall wasp (on Oak)					X
	<i>Neurotus numismalis</i>	Silk button gall (on Oak)					X
	<i>Panorpa communis</i>	Common Scorpionfly					X
	<i>Pararge aegeria</i>	Speckled wood butterfly			X		X
	<i>Pardosa amentata</i>	Wolf spider				X	X
	<i>Pieris rapae</i>	Small white butterfly				X	
	<i>Pogonognathellus longicornis</i>	Springtail				X	
	<i>Speyeria aglaja</i>	Dark green fritillary			X		
Mammals	<i>Vulpes vulpes</i>	Red Fox				X	
Grasses, rushes & sedges)	<i>Carex sylvatica</i>	Wood Sedge			X		
	<i>Deschampsia cespitosa</i>	Tufted Hair grass			X		
	<i>Holcus lanatus</i>	Yorkshire fog		X	X		X
	<i>Juncus effusus</i>	Soft rush					X
	<i>Luzula sylvatica</i>	Great Woodrush			X		X
Shrubs	<i>Calluna vulgaris</i>	Common heather					X
	<i>Cytisus scoparius</i>	Broom					X
	<i>Hedera helix</i>	Ivy		X	X		X
	<i>Hippophae rhamnoides?</i>	Sea Buckthorn					X
	<i>Lonicera periclymenum</i>	Honeysuckle					X
	<i>Ribes nigrum</i>	Blackcurrant					X
	<i>Rosa rugosa?</i>	Beach Rose					X
	<i>Rubus fruticosus</i>	Bramble		X	X		X
	<i>Rubus idaeus</i>	Raspberry		X	X		X

Taxon	Scientific Name	Common Name	2015 plan	Baseline survey 2016	Repeat Survey 2019	Bio-blitzes 2023	WRL 2025
	<i>Rubus sp</i>	loganberry					X
	<i>Ulex sp</i>	Gorse					X
	<i>Vaccinium myrtillus</i>	Bilberry		X	X		X
	<i>Vaccinium sp</i>	Blueberry					X
Slime moulds	<i>Fuligo septica</i>	Dog vomit slime mould					X

Appendix 5 – App-based bird monitoring

A standard technique for recording bird diversity is to count the species that can be heard calling from a fixed 'listening station' for a fixed period of time. This requires the ability to identify birds from their calls which is usually beyond all but the most committed bird spotters. However, the emergence of AI supported apps which can record and identify bird calls has made this form of monitoring much more accessible to amateur bird spotters. The best of the available apps (2025) is Merlin app developed by Cornell University <https://merlin.allaboutbirds.org/>. The app can be installed on a smart phone or tablet and will automatically record and identify birds calling over ten minutes of recording. This won't get everything correct but if done at the same place, at the same time of day using the same device will at least give a standardised base for comparison. As an example of the type of records that can be provided by an app – the following are lists of species recorded at the Shelter in the centre of site at 1 pm on the 16 July over three concurrent ten minute periods by Merlin. Note how the commonest species were picked up in every recording while others only appeared in one recording. This suggests that taking several recordings would provide a little more information than one half hour recording.

Bird	12:55	13:22	13:34	Visual only
Wren	X	X	X	
Robin	X	X	X	
Dunnock	X	X		
Greater black backed gull	X			
Treecreeper	X		X	
Goldcrest	X	X	X	
Raven	X			
Goshawk	X		X	
Chaffinch	X			
Firecrest	X			
Coal tit		X		
Blue tit		X		
Siskin		X	X	
Nuthatch			X	
Blackbird			X	
Spotted flycatcher			X	
Blackcap			X	
Jay			X	
Long tailed tit			X	
Coal tit			X	
Song thrush			X	
Greater spotted woodpecker				X