



Beaufort Wind Limited

Beinn Ghlas Wind Farm Repowering

Environmental Impact Assessment Report (Volume 4)

Technical Appendix 13.3: Baseline Forestry Plans

663547

West Region

Taynuilt Land Management Plan



M2: Felling within first 10 years

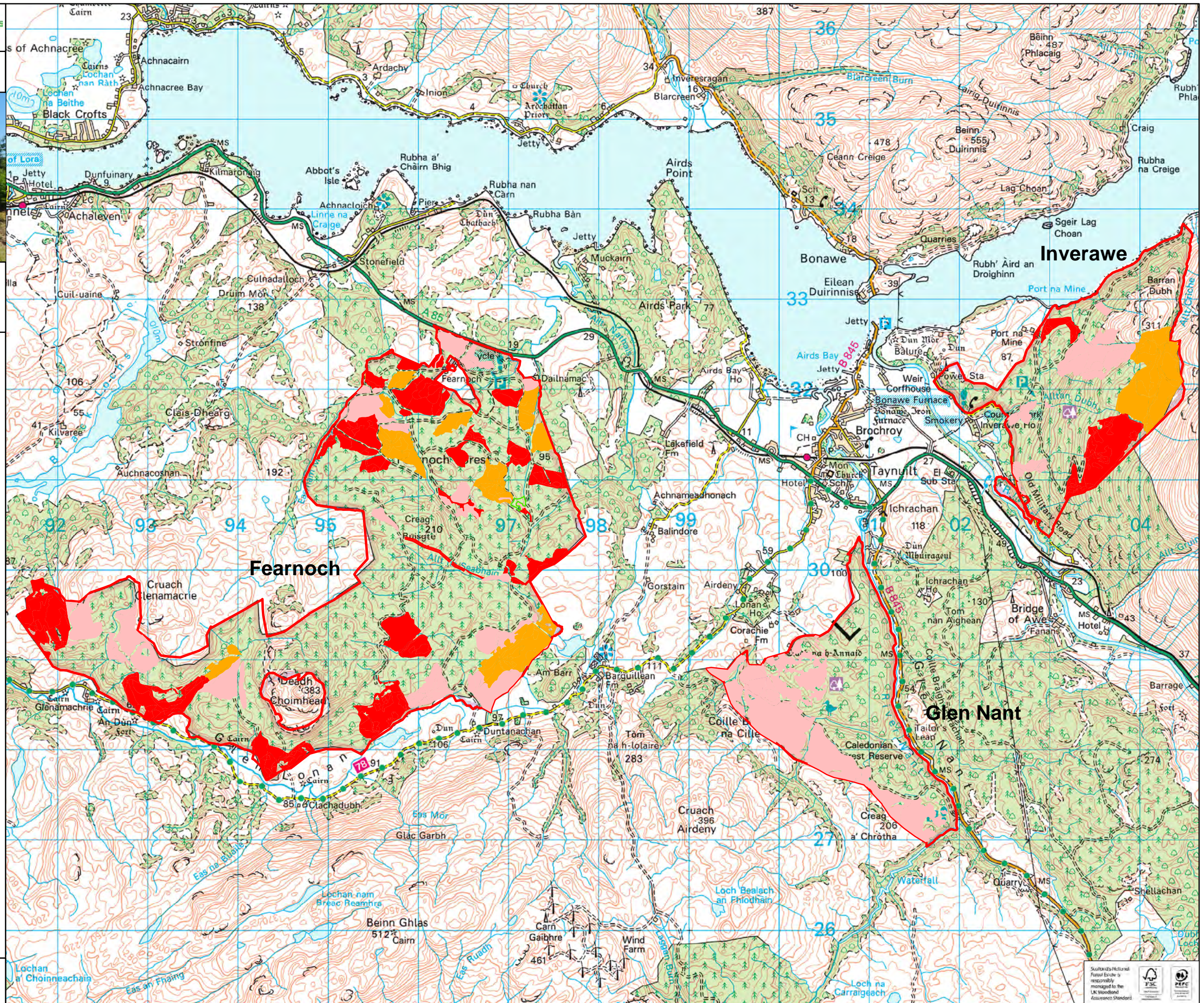
Legend

- Taynuilt Land Management Plan Area
- Phase 1: 2020 - 2024
- Phase 2: 2025 - 2029
- Felled

Scale: 1:40,000 @ A3

17/09/2019

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West Argyll Forest District


Taynuilt Land Management Plan



M3: Thinning within first 10 years

Legend

Thinning Type

 Thinning linked to the management of: Recreational Areas, Fencelines, Roadlines, Broadleaved and ecologically sensitive open ground areas. Total area 769.11Ha

 Silvicultural Thinning 350.53Ha

In addition to traditional thinning areas that generate timber and revenue, a number of other areas may require thinning in relation to ecological, recreation and infrastructure management. These operations are largely fell to waste rather than timber generating operations.

Note: the Removal of Conifer Regeneration area (grey on map) represents areas where this option may be desirable rather than a commitment to undertaking this operation. Extent and type of regeneration, specific site cost/benefit analysis, budgets and practical considerations will determine whether conifer regeneration removal is undertaken

Scale: 1:40,000 @ A3

23/10/2019



The thinning map for the first ten years indicates the areas with potential for traditional silvicultural thinning. Within the Fearnoch PAWS restoration area thinning is a useful option to have for site management in response to monitoring feedback, however thinning may encourage undesirable conifer regeneration, and consequently each potential thinning site should be evaluated on a case by case basis to ensure that thinning will facilitate PAWS restoration and not impede the process.

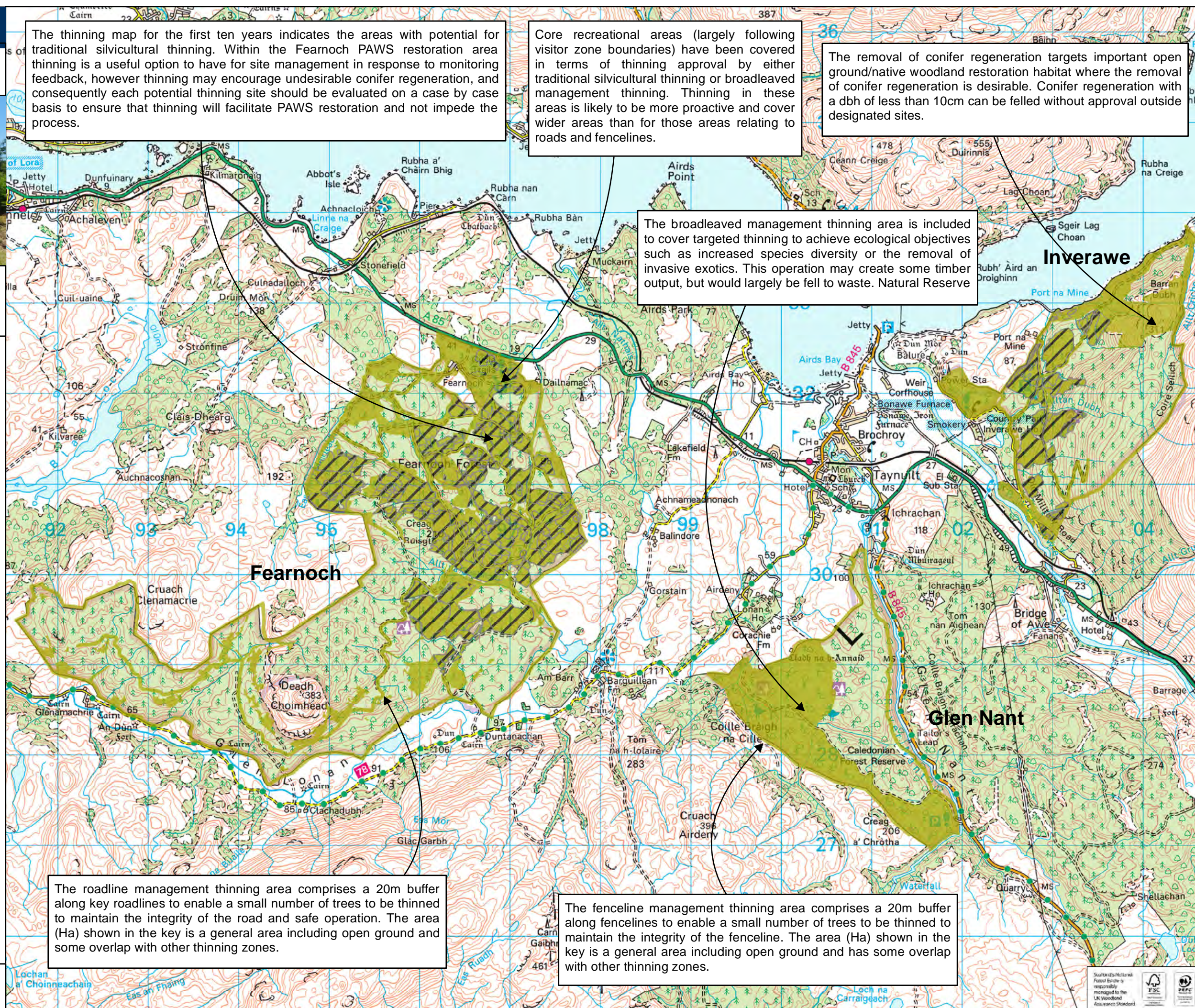
Core recreational areas (largely following visitor zone boundaries) have been covered in terms of thinning approval by either traditional silvicultural thinning or broadleaved management thinning. Thinning in these areas is likely to be more proactive and cover wider areas than for those areas relating to roads and fencelines.

The removal of conifer regeneration targets important open ground/native woodland restoration habitat where the removal of conifer regeneration is desirable. Conifer regeneration with a dbh of less than 10cm can be felled without approval outside designated sites.

The broadleaved management thinning area is included to cover targeted thinning to achieve ecological objectives such as increased species diversity or the removal of invasive exotics. This operation may create some timber output, but would largely be fell to waste. Natural Reserve

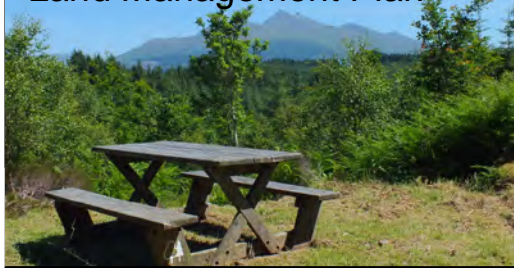
The roadline management thinning area comprises a 20m buffer along key roadlines to enable a small number of trees to be thinned to maintain the integrity of the road and safe operation. The area (Ha) shown in the key is a general area including open ground and some overlap with other thinning zones.

The fenceline management thinning area comprises a 20m buffer along fencelines to enable a small number of trees to be thinned to maintain the integrity of the fenceline. The area (Ha) shown in the key is a general area including open ground and has some overlap with other thinning zones.



West Region

Taynuilt Land Management Plan



M4: Future Habitats & Species within first 10 years

Legend

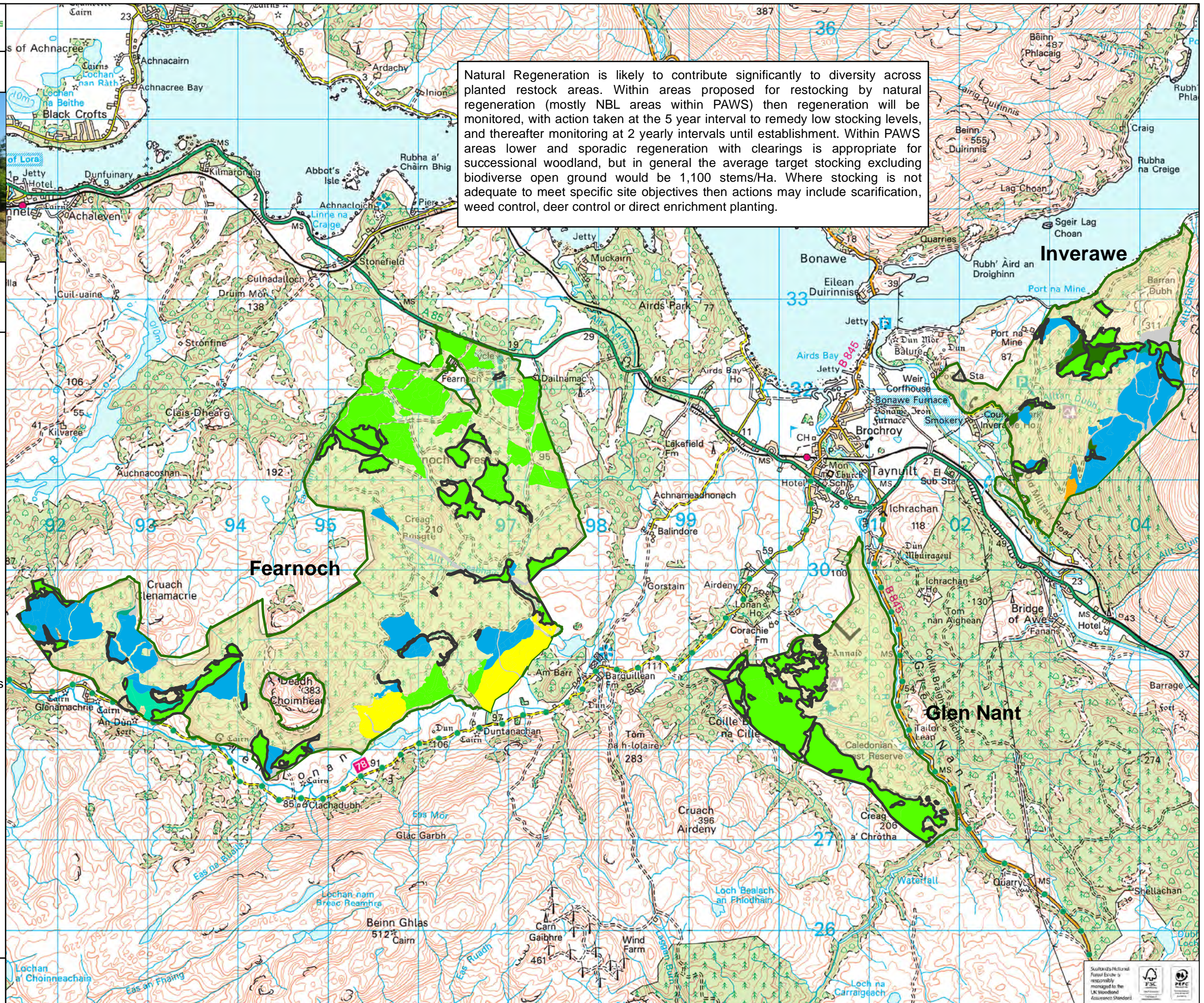
- Taynuilt LMP Area
- DF: Douglas Fir
- MC: Mixed Conifer
- NBL: Native Broadleaved
- NS: Norway Spruce
- NS/SP
- OG: Open ground
- SP: Scots Pine
- SS: Sitka Spruce
- Natural Regen Target Areas.

Note: Where Natural Regen Target Areas overlap blank areas on map, then these comprise existing open ground. Many of these areas are already regenerating naturally.

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Natural Regeneration is likely to contribute significantly to diversity across planted restock areas. Within areas proposed for restocking by natural regeneration (mostly NBL areas within PAWS) then regeneration will be monitored, with action taken at the 5 year interval to remedy low stocking levels, and thereafter monitoring at 2 yearly intervals until establishment. Within PAWS areas lower and sporadic regeneration with clearings is appropriate for successional woodland, but in general the average target stocking excluding biodiverse open ground would be 1,100 stems/Ha. Where stocking is not adequate to meet specific site objectives then actions may include scarification, weed control, deer control or direct enrichment planting.

West Region

Taynuilt Land Management Plan



M9a: Opportunities & Constraints Fearnoch North

Legend

Existing Forest Roads

Taynuilt Plan Area

Primary Current Species

- NBL: Native Broadleaves
- DF: Douglas Fir
- L: Larch
- GF: Grand Fir
- LC: Lawson Cypress
- LP: Lodgepole Pine
- MC: Mixed Conifer
- MOP: Mountain Pine
- NF: Noble Fir
- NS: Norway Spruce
- RC: Western Red Cedar
- SP: Scots Pine
- SS: Sitka Spruce
- WH: Western Hemlock

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The northern part of the forest is bounded by the Clais Dheag SSSI on its west side and the Airds Park & Coille Nathais SSSI to the east. Both areas form part of the wider Loch Etive Woods SAC. PAWS and established broadleaves run through the northern part of the forest which offers the opportunity to link the two designated sites with newly established native broadleaved woodland. The restoration of PAWS areas leads to a loss of productive SS and in the case of NS, SP, L & DF there can be a loss of overall biodiversity as these non invasive species support a range of additional species.

Deer control is essential for successful PAWS restoration. A strategic deer fence enclosing the whole of the northern section offers advantages over numerous small deer fenced enclosures. Impacts on the designated sites would need to be considered, but given the deer cover currently provided by North Fearnoch, then the overall impact is likely to be positive on the adjacent sites.

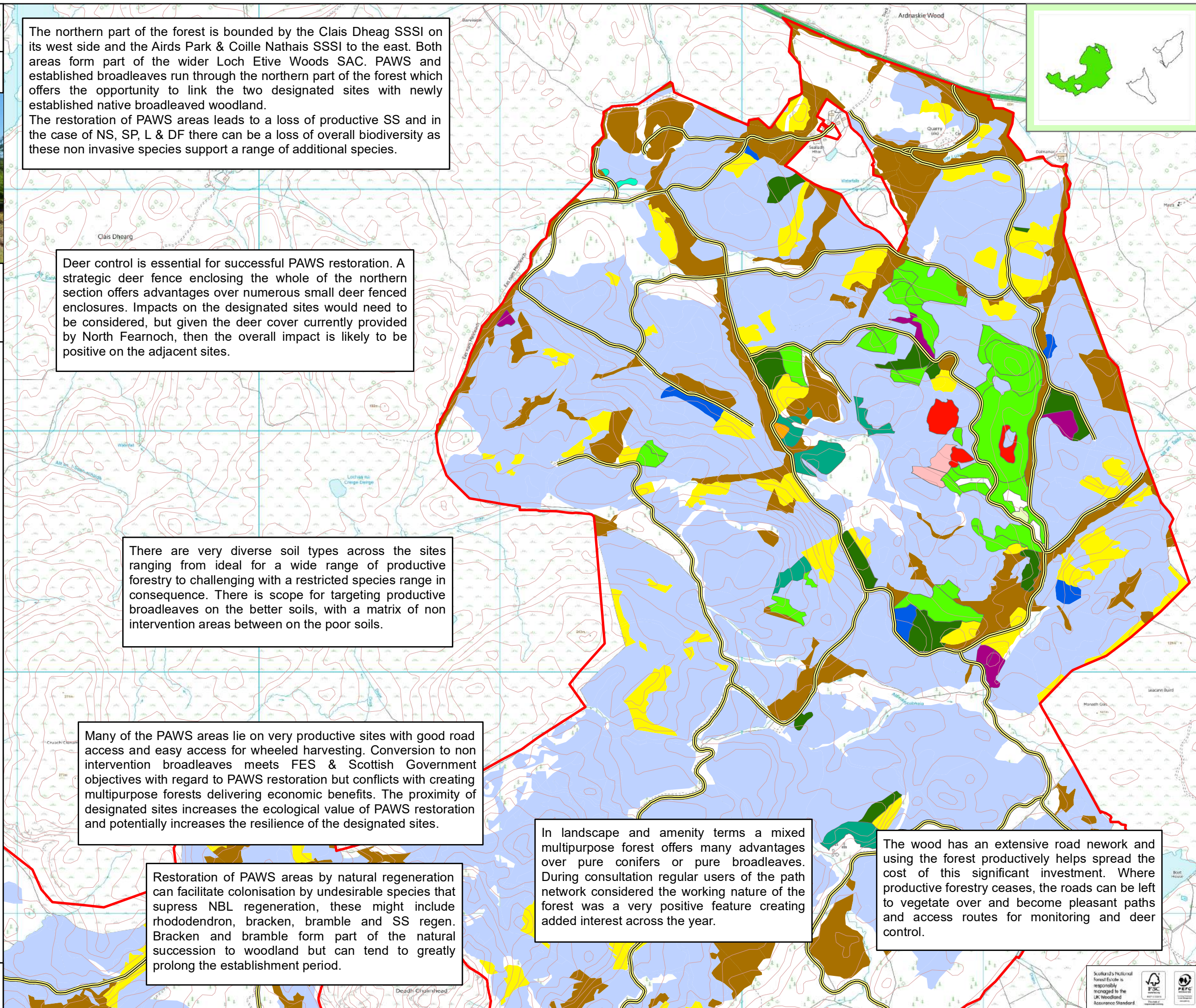
There are very diverse soil types across the sites ranging from ideal for a wide range of productive forestry to challenging with a restricted species range in consequence. There is scope for targeting productive broadleaves on the better soils, with a matrix of non intervention areas between on the poor soils.

Many of the PAWS areas lie on very productive sites with good road access and easy access for wheeled harvesting. Conversion to non intervention broadleaves meets FES & Scottish Government objectives with regard to PAWS restoration but conflicts with creating multipurpose forests delivering economic benefits. The proximity of designated sites increases the ecological value of PAWS restoration and potentially increases the resilience of the designated sites.

Restoration of PAWS areas by natural regeneration can facilitate colonisation by undesirable species that suppress NBL regeneration, these might include rhododendron, bracken, bramble and SS regen. Bracken and bramble form part of the natural succession to woodland but can tend to greatly prolong the establishment period.

In landscape and amenity terms a mixed multipurpose forest offers many advantages over pure conifers or pure broadleaves. During consultation regular users of the path network considered the working nature of the forest was a very positive feature creating added interest across the year.

The wood has an extensive road network and using the forest productively helps spread the cost of this significant investment. Where productive forestry ceases, the roads can be left to vegetate over and become pleasant paths and access routes for monitoring and deer control.





West Region

Taynuilt Land Management Plan



M10a: Design Concept
Fearnoch North

Legend

-  Taynuilt Roads
 Taynuilt Plan Area

Current Main Species

- Mixed Broadleaves
- Douglas Fir
- Larch
- Grand Fir
- Lawson Cypress
- Lodgepole Pine
- Mixed Conifer
- Mountain Pine
- Noble Fir
- Norway Spruce
- Western Red Cedar
- Scots Pine
- Sitka Spruce
- Western Hemlock

Note: red text boxes relate to felling design concepts and green text boxes to restocking design concepts.

Scale: 1:15,000 @ A3

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Clearfelling has some advantages over continuous cover forestry (CCF) where the intention is to change species composition, for example with PAWS restoration. Clearfells remove potential invasive species seed sources, offer more scope for active management, and more rapid establishment where planting occurs. Conversely opening a site rapidly via clearfelling can be detrimental to epiphytes and other species requiring shade and shelter, and may encourage competitive and problematic weed growth that can be detrimental to woodland regeneration. On balance PAWS restoration will be achieved largely by clearfelling the existing conifer crops, some of which will be felled before their economic optimum felling age.

Restoration of the PAWS areas and the buffer area adjacent to the designated sites would ideally be by natural regeneration, however natural regeneration can be a complex and unpredictable silvicultural method, with uncertain outcomes and potentially high management costs over a prolonged time period. Planting local seed provenances of appropriate native broadleaves offers the potential to restore woodland rapidly, to control invasive species and aggressive weed competition, and to provide a potentially valuable timber and woodfuel crop that could be managed as CCF to achieve multiple objectives. Clearly accepting NBL natural regeneration would enrich the planted areas and reduce beating up costs.

Following advice from both SNH and Richard Thompson (FES Native Woodland Ecologist) and extensive internal consultation it is proposed to convert the whole of the north part of North Fearnoch to NBL. This conversion will include pockets of non-PAWS areas in order to create a landscape scale NBL linkage between the designated sites. The site has good potential for productive broadleaves and the development of these areas could mitigate the significant loss of productive area arising from the conversion process.

Given the aim of PAWS restoration, NBL regeneration and CCF of sensitive species then deer control is essential. The area would be sensitive to deer impacts for many years. The shape of the core PAWS area and the terrain would appear to lend itself to a strategic deer fence, with the conifer CCF area and productive broadleaves potentially playing a key role in making the economic case for this long term and significant investment. A strategic deer fence with good deer control internally may be a more cost effective option than numerous smaller fenced blocks, and could have lower recreational impacts. Deer fencing is likely to have an impact on the adjacent designated sites.

The felling proposal features large scale coupes along the upper slopes with smaller scale coupes closer to the lower margin. Crop features, past felling and windfirm edges determine coupe design. Felling Phasing is linked to crop growth, age, past management and to the objective of creating a more diverse age class structure.

West Region

Taynuilt Land Management Plan



M12a: Future Habitats & Species. Fearnoch North

Legend

- Proposed Deer Fence
- Taynuilt_Planned_Roads
- Taynuilt_Roads
- Taynuilt_Plan_Area

Restock

- DF: Douglas Fir
- MB: Mixed Broadleaves
- MB LTR: MB Long Term Retention
- MC: Mixed Conifer
- NBL: Native Broadleaved
- NBL LTR: NBL Long Term Retention
- NS: Norway Spruce
- OG: Open ground
- OL: Other Land
- SP: Scots Pine
- SS: Sitka Spruce
- SS/LP: Sitka Spruce/Lodgepole Pine
- NS/SP: Norway Spruce/Scots Pine
- Natural Reserve

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The restructuring of the Northern part of Fearnoch is focussed on PAWS restoration in order to meet Policy commitments with regard to adjacent designated sites (SSSIs & SAC) & PAWS restoration. The spatial arrangement of the PAWS and adjacent Atlantic Oakwood designated sites offers the opportunity for the creation of landscape scale ecological linkages. However the establishment of Native Broadleaves by natural regeneration or direct planting is a resource intensive process dependent on adequate funding for a range of activities including potentially: fencing, deer control, respacing/removal of conifers, plants, planting and weed control. Where funding is insufficient to meet the anticipated costs, then felling & consequently restocking may be delayed to enable operational activity to correlate with funding availability.

