



Forestry and
Land Scotland
Coilltearachd agus
Fearann Alba

Tentsmuir Forest Land Management Plan 2026 - 2036

We manage Scotland's National Forest Estate to the United Kingdom Woodland Assurance Standard – the standard endorsed in the UK by the international Forest Stewardship Council® and the Programme for the Endorsement of Forest Certification. We are independently audited.

Our land management plans bring together key information, enable us to evaluate options and plan responsibly for the future. We welcome comments on these plans at any time.



The mark of
responsible forestry



A. Description of Woodlands

A.1 Property Details and Declaration

A.1 Property Details			
Property Name:	Tentsmuir Forest		
Grid Reference: (e.g. NH 234 567)	NO 4718 2352	Nearest town or locality:	Leuchars
Local Authority:	Fife Council		
LTP plan area (hectares):	1,477 hectares		
Applicant Details			
Regional Manager:	Doug Harvey		
Planner:	Louise Sing		
Organisation:	Forestry and Land Scotland	Position:	East Region
Primary Contact Number:	0300 067 6380	Alternative Contact Number:	N/A
Email:	enquiries.east@forestryandland.gov.scot		
Address:	Forestry and Land Scotland, Inver, Dunkeld, Perthshire		
Postcode:	PH8 0JR	Country:	Scotland
Approval - to be completed by Scottish Forestry staff:			
LTP Reference Number:			
Plan Period: (ten years) (day/month/year)	From:	To:	
Operations Manager Signature:		Approval Date: (dd/mm/yyyy)	

Declaration

I hereby apply for a permission to fell the trees described in this application and I certify that:

- I am authorised to sign legal contracts on behalf of Forestry and Land Scotland.
- I undertake to obtain any permissions necessary for the implementation of the approved Plan.
- I have made the necessary checks with the local planning authorities regarding Tree Preservation Orders and Conservation Areas.
- I confirm that the scoping, carried out and documented in the Consultation Record attached, incorporated those stakeholders which SF agreed must be included.
- I hereby acknowledge that Scottish Ministers may process any of my personal data contained in or relating to this application in accordance with the terms of Scottish Forestry's Privacy Notice.
- Where applicable and appropriate I have submitted an EIA screening opinion request form for operations contained within this application under the Forestry (Environmental Impact Assessment) (Scotland) Regulations 2017 for road building /quarries /afforestation /deforestation.
- I have read and understand this application fully and, to the best of my knowledge and belief, the information given in this application is complete, true, and accurate.
- I accept that any false or misleading information provided in this application constitutes an offence and may result in any felling permission based on this application being revoked at any time.
- I have read and understand Scottish Forestry's Privacy Notice.

Do you give consent for Scottish Forestry to access your land? Delete as appropriate.	YES				
You are not obliged to give us consent to enter your land, however if we are denied access to your land, and cannot carry out an assessment because of this, we may reject your application. This consent is for access to assess this application as well as monitor compliance with any subsequent approval, where applicable					
Signed:		Print:		Date:	

A.2 Location and Background

Tentsmuir is located in north east Fife, positioned at the mouth of the Tay Estuary on an extensive area of sand and old dune slacks. See Map 1. The Land Management Plan area covers 1477 hectares including Morton Lochs. Reres Wood was previously part of the plan area, but was sold at the start of 2025. Most of the land was acquired by the Forestry Commission in the 1920s and planted predominantly with Scots pine and Corsican pine. There are still a few sites where the first rotation of pines planted between 1922 and 1925 have been retained. Much of the forest is managed using a continuous cover forestry approach, although the programme of regular thinning interventions needed to maintain this was paused following significant storm damage in 2021. The site contains a Sitka spruce seed orchard, which is managed separately to the Tentsmuir block by Forestry and Land Scotland.

In addition to commercial forestry, Tentsmuir features an interesting mixture of open space, ponds, trees and sand dunes that are rich in wildlife and popular for recreation. Tentsmuir is one of the main visitor destinations in Fife, with an estimated 200-250,000 visits per year. It provides an important area for local recreation for residents in Tayport and Leuchars and forms part of the Fife Coastal Path. The coastline surrounding the forest also has a number of local, national and international designations which influence the management of the forest. The site and the coastline also contain a number of heritage features and a Scheduled Monument consisting of a complex of World War II coastal defences.

A.3 Existing Schemes and Permissions

The previous Land Management Plan (LMP) expired on 20th June 2022. There are no active felling permissions or EIA determinations. NatureScot lease and manage three sites within the forest at Morton Lochs, Tayport Heath and Tentsmuir Point.

A.4 Stakeholder Engagement

Stakeholders were consulted at two stages during the development of the plan: a one month initial scoping phase during Winter 2022 and a three month consultation on the draft proposals during Summer 2024, including two drop in events jointly held with NatureScot in Tayport. The full consultation record and reports can be found in Appendix I.

Summary of the main points raised by stakeholders (and where they are addressed in the plan):

1. Dune habitat restoration (Section C.2.11)
2. Public access (Section C.2.9)
3. Designated site protection (Section C.2.15)
4. Scheduled and historic monument protection (Section C.2.10)

A.5 Long Term Vision and Management Objectives

Vision: a commercially important forest which retains its characteristic mature pine structure whilst becoming more structurally diverse and resilient for the future, and which provides a high quality environment for both biodiversity and the visitor experience.

The management aims for the forest are driven by national policies and priorities:

- **Continue to produce quality timber and wood products.** Promote tree health and timber quality through thinning and site-appropriate species selection on restocking sites. Broadleaves (particularly birch), pines and Sitka spruce are naturally regenerating in the forest and there is the opportunity to manage them to produce timber and wood products or use them to shelter preferred species.
- **Respond to the potential impacts of climate change.** Increasing the diversity of tree species and habitats - including a broader suite of species that are tolerant to the changing conditions in the forest, and dune restoration in the areas at highest risk of flooding - will help to improve the overall resilience of the forest and the biodiversity it supports.

- **Enhance the quality of visitor experience.** Ensure the experience of visitors in, out and around Tentsmuir is of high quality. Consider the impact of operations and choice of species on visitors' experience.

Over the next 20 years, the forest will develop a more diverse species (including oak, alder, aspen, willow, Douglas fir and Maritime pine) and age structure, as riparian and broadleaved habitat networks including are created and the naturally regenerating birch are brought into management and the Sitka spruce area is gradually reduced. Changes in land use and forest structure along the north and east coasts will improve the forest's resilience to the main threats of storms and sea level rise.

Objectives:

1. Reinvigorate the thinning programme to promote timber quality, stability, tree health and natural regeneration.
2. Manage the future species choice to concentrate on productive forestry where possible but also diversify to improve future resilience and enhance biodiversity.
3. Begin pre-emptive actions to reduce impacts in areas where coastal flooding and erosion is high risk (1 in 10 year risk).
4. Begin pre-emptive actions to reduce impacts where flooding of the Powie Burn and the drainage system is predicted in the next 10 years.
5. Monitor and assess the drainage network so that it does not impact on operations or access in the forest.
6. Take opportunities to develop a new windfirm edge along the north and east coasts and around Morton Lochs.
7. Ensure appropriate levels of access for forestry operations, emergency services and the general public.
8. Look for opportunities to enhance the quality of the visitor experience across the forest and access to the beach.
9. Manage land for protected flora and fauna species to improve habitats including adjacent designated sites.
10. Protect heritage features within the forest.
11. Continue to monitor and respond to Dothistroma needle blight (DNB) and other diseases within the crop through planned thinning operations.
12. Increase wildfire resilience measures to reduce risks and support emergency response.

A.6 General Site Description

A.6.1 Topography and Landscape

The forest is part of the Coastal Flats - Fife Landscape Character Type (NatureScot, 2019), and is characterised by a flat lowland area with no hills or valleys. It has a relatively uniform and small scale structure, with straight lines created by the road and drainage network, while evidence of the former sand dune morphology is still apparent within the forest area. The elevation is below 10 metres above sea level, with the ground gently rising inland from the coast. Due to its flat topography, only the forest edges are visible in the landscape as a horizontal line, which can be seen from across the Tay and from St Andrews when travelling between Tayport and Leuchars, and on the East Coast mainline rail service. Due to the lack of visual impact of the forest, there are no landscape viewpoints included in this plan. Internal views through the forest and to the sea are important along key recreational routes.

The seaward dune and beach area is designated as a National Nature Reserve, Site of Special Scientific Interest (SSSI), Special Protection Area (SPA) and Special Area of Conservation (SAC). Morton Lochs is a National Nature Reserve and SSSI. See Map 3 and Section A.6.9 for more information on the designated sites.

A.6.2 Geology and Soils

Tentsmuir is underlain by Lower Old Red Sandstone bedrock and overlain almost entirely by sand. Gravel, silt and clay are also present in places. These soil conditions are uncommon in Scottish forests. The sands within the forest are differentiated by the relevant water conditions which are determined by the height of the water table:

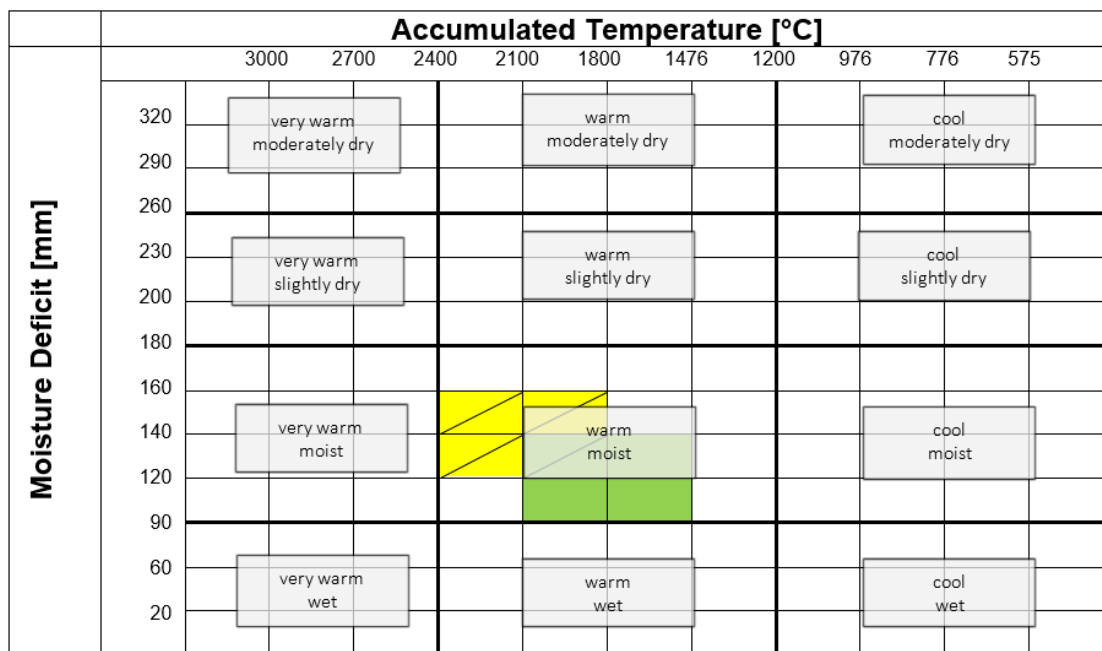
- sands with shallow water table (15g)
- sands with moderately deep water table (15i)
- excessively drained sands (15e)
- dunes (15d)

The soils range from very moist and poor (15g in places) to very dry and very poor (15d and 15e). The availability of water in the soil varies across the forest; where this is higher it restricts rooting depth. Drier conditions rule out species that have a high demand for water, such as Sitka spruce, in all but the wetter soils found within the forest. See Map 8.

A.6.3 Climate

The climate is classed as warm, sheltered and moist using the Ecological Site Classification (ESC) system, as shown below in green. Mean rainfall is around 700 mm per year. Thinning

options are not limited by wind, although recent experience shows that wind damage may occur – see Section A.6.5. Being flat, the forest experiences severe winter frosts which affect tree establishment. Future climate projections indicate that the climate is likely to remain warm and moist though gradually becoming warmer and drier by the middle of this century, as shown in the chart by the yellow shaded and hatched boxes.



More information on accumulated temperature, moisture deficit and exposure can be found in [Forestry Commission Bulletin: An ecological site classification for forestry in Great Britain](#).

A.6.4 Hydrology

See Map 3. The main surface water bodies are the coastal waters surrounding the forest, the Firth of Tay, North Sea and the Eden Estuary to the South. Their condition status is described as good (SEPA, 2023). Coastal waters provide one of the most valuable habitats for wildlife including plants, invertebrates, fish, birds and mammals. Morton Lochs is a wetland area with open water at the west of the forest, aiming to provide shelter and protection for birds. The lochs and the surrounding forest form the Morton Lochs SSSI and part of the Tentsmuir National Nature Reserve.

Tentsmuir has an established drainage system which until recently was regularly maintained to support forest establishment, maintain forest health, and manage drainage from

upstream neighbouring farms and properties. The drainage network exits the forest at three locations, one at the north east boundary of the forest, and two along the east coast. The efficacy of these drains is impacted by sand movement along the coast.

There are no Scottish Water drinking water catchments or abstraction sources. No private water supplies were identified through the consultation process, but additional ground truthing will be carried out prior to works starting at the working planning stage.

The key flood risk areas (1 in 10 year risk) are along the Powie Burn which travels from the south through the forest, and along the coast, with additional smaller parts of low lying areas within the forest at risk of surface water flooding. Future flood risk modelling using climate change projections (including sea level rise) published by SEPA and Dynamic Scotland indicate larger areas along the east and north coast are at risk of inundation and erosion during this century.

A.6.5 Windthrow

Despite its classification in ESC as sheltered (DAMS 11-12), the forest is susceptible to frequent small scale windblow events along its northern and eastern coastal edges. The forest was significantly impacted along its north coast and between Fetterdale - Morton Lochs, and in recently thinned stands in the west of the forest, by Storm Arwen in 2021. The north coast and Fetterdale - Morton Lochs windblow areas have been cleared and their future management proposal is included in this plan. Windblow is still present in coupes in the west of the forest.

A.6.6 Adjacent Land Use

To the west and south, the forest is surrounded by agricultural land of varying quality from arable to wetland. Within the forest is a private farm used to keep horses, a small community at Kinshaldy, and another small community at Fetterdale. Earls Hall Muir SSSI lies directly to the south of forest. Morton Lochs and the coastal zone are also designated - see Section A.6.1 for more information.

A.6.7 Access

The forest is an important recreation destination both locally and regionally, and is accessible at several places. The main access is through Kinshaldy, with parking and visitor amenities (picnic site, playpark and toilets) near to the coast, and a non vehicle access route from Tayport, where there is another picnic site. There is a smaller car park at Morton Lochs. The Fife Coastal Path and Sustrans cycle route pass through the forest from the south end via Earls Hall Muir and the Tayport entrance, following the coastal perimeter of the

forest. Other than the main forest road to Kinshaldy, public access through the forest is restricted to non-vehicle use of the extensive network of forest roads and rides, making it popular for walking, cycling and horse riding. There is one waymarked trail which heads north from the Kinshaldy car park to a picnic site at the Icehouse (see A.6.8). See Map 3.

A.6.8 Historic Environment

There is one Scheduled Monument in Tentsmuir, the Tentsmuir Coastal Defences (SM9712). It comprises a complex of linear defences, running from Leuchars Airfield to Lundin Bridge, and the remains of the Polish army camp. The defences were intended to protect a stretch of the coastline, which was considered vulnerable to attack by German forces during the Second World War. As the dunes have shifted and extended seaward since their original construction in 1940, some of the coastal defence features are now lying within the forested area. The SM is in generally satisfactory condition though had been impacted by windblow and gorse regeneration in some sections (HES condition survey 2023).

Map 9 shows the historic features which will be actively conserved. The forest also contains other regionally significant sites (Appendix II). Other notable features include a 19th Century Ice House which would once have been located close to the shore. Historically this was used to store salmon, and is a popular destination for visitors. An 18th Century inscribed march stone north of the Ice House marks the boundary between salmon fishing rights dated 1794. Features also shown Map 3.

A.6.9 Biodiversity

Designated areas

The coastline is designated as the Firth of Tay and Eden Estuary Special Areas of Conservation (SAC), Firth of Tay and Eden Estuary (SPA) and Tayport – Tentsmuir Coast (SSSI). They partially overlap the forest in places – see Map 3. The SSSI is a geological and biological site designated for the coastal geomorphology, mudflats, and dunes with specific fauna and flora. The SPA and SAC are designed to protect habitats and protected birds and other coastal species.

Morton Lochs Site of Special Scientific Interest (SSSI) overlaps the forest in the north west. This is a biological site comprising areas of open water, fen and reed-swamp, dune grassland, scrub and woodland habitats.

Earlshall Muir SSSI directly south of the forest is a designated remaining tract of unforested lime-poor sand dunes with representative examples of dune ridge and dune slack plant communities.

Tentsmuir National Nature Reserve (NNR) consists of three sites: Tentsmuir Point, Tayport Heath and Morton Lochs. Tentsmuir Point is designated for coastal dunes, sandflats and banks that remain largely undisturbed with a variety of habitats. Tayport Heath is a restored dune habitat and Morton Lochs covers both a wetland area and restored dune heath.

Habitats

Within the forest there are no ancient woodlands or Planted Ancient Woodland Sites (PAWS) but there are three sites identified as being Long Established of Plantation Origin (LEPOs) which are currently planted with either Sitka spruce, Scots or Corsican pine, and one area which is part of the windblown area between Fetterdale and Morton Lochs. There are areas of native woodland, mainly birch woods, scattered throughout the forest. There is a restored lichen bed in the east of the forest. See Map 3.

Species

The forest provides habitat for many species such as red squirrels, pine martens, badgers, bats and several woodland raptors. A range of moths and butterflies are present within the forest. Beaver are occasionally found in the forest. Twinflower, coral root orchid and other rare plant species are present on the site.

A.6.10 Invasive Species

Rhododendron is present in the south of the forest, and is managed through a regular programme of removal. The pine acts as a seed source onto the adjacent open and coastal designations, impacting their condition status. Other invasive plants that have previously been recorded on the dunes, including sea buckthorn. Grey squirrels are known to reach the forest from Tayport.

A.6.11 Utilities

There is a main gas pipe that passes through the forest in two places, at Fetterdale and the north east corner at the Tayport entrance. A 100 mm PVC mains water supply runs through the western part of the forest. See Map 3.

A.7 Woodland Description

See Map 2, which shows the current tree species composition and pattern.

Species

The forest is predominantly pine, principally Scots pine (41%) with Corsican pine (15%) – see Table 1 and Figure 1. Lodgepole pine that was present at the start of the previous plan has mostly been felled as it was found to be the most severely impacted by DNB, though young

trees have naturally regenerated and are currently showing good health. Birch is the primary broadleaf species which is successfully regenerating throughout much of the forest as the deer population is well managed. The main naturally regenerating species are birch, sycamore, pine (Scots, Corsican and lodgepole), and Sitka spruce. There are remnant mature beech avenues around Kinshaldy which pre-date acquisition of the forest by the Forestry Commission in the 1920s.

Restocking and species trials (now closed) have resulted in the establishment of alternative conifers among the pines. During the 1980s, restocking trials used strip fellings to establish Sitka spruce on wetter soils, retaining strips of mature pine to create a protective microclimate for the young trees which were particularly susceptible to winter frosts. These strips are still evident within the forest, though as the Sitka reaches its terminal height it is becoming susceptible to wind throw and snap. Other species introduced through trials within the forest include Grand Fir, Noble Fir, and more recently a fenced enclosure (11 hectares) where broadleaves (sessile oak and sweet chestnut), Douglas fir, Macedonian pine and Weymouth pine were planted in 2017 and are being informally trialled. This trial site was partly damaged by fire during 2023, during which many of the Macedonian pines were lost.

Management

Tentsmuir has historically been managed using low impact silviculture systems to deliver timber production and biodiversity objectives. Prior to the 2021 storm, the forest was regularly thinned.

Structure

See Table 2 and Figure 2. The current age structure is skewed towards trees aged 20 and over although these figures do not fully represent the levels of natural regeneration present in the forest. The oldest trees are mostly Scots pine planted when the estate was first acquired by the Forestry Commission and date back to 1929.

Open ground is mostly around the coast. Due to the well controlled deer population, open ground tends to fill in with natural regeneration, including along rides and roadsides. A large area of the forest is currently counted as transient (9%) in Table 1; this is mainly the two large windblown areas that have been harvested and are awaiting either restocking or open habitat restoration as described in the Concept (Section B.1) and Biodiversity (Section C.2.11).

Table 1: Plan area by species

Species	Current Area (ha)	%	Year 10 Area (ha)	%	Year 20 Area (ha)	%
Scots pine	600	41%	584	40%	592	40%
Corsican pine	219	15%	184	12%	152	10%
Sitka spruce	155	10%	85	6%	32	2%
Other conifers (including Douglas fir, Maritime pine)	56	4%	72	5%	69	5%
Broadleaves (including oak, alder, aspen, willow) (non-native <10 ha)	205	14%	284	19%	362	25%
Open ground/other ground	112	8%	164	11%	177	12%
Fallow	130	9%	104	7%	93	6%
Total	1477	100	1477	100	1477	100

Figure 1: Area by species

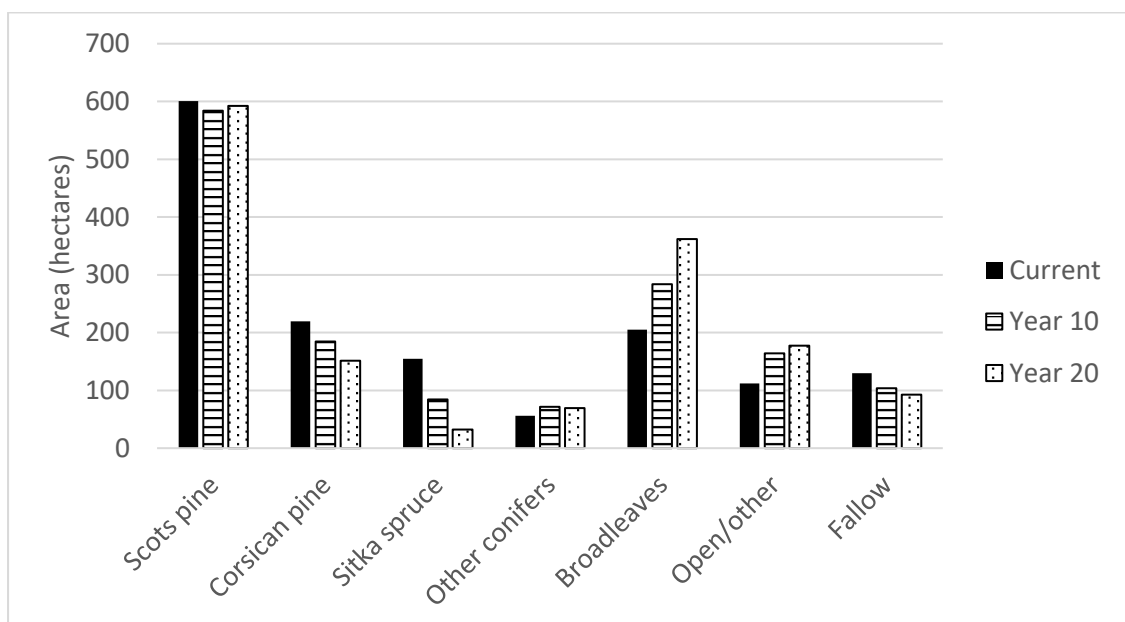
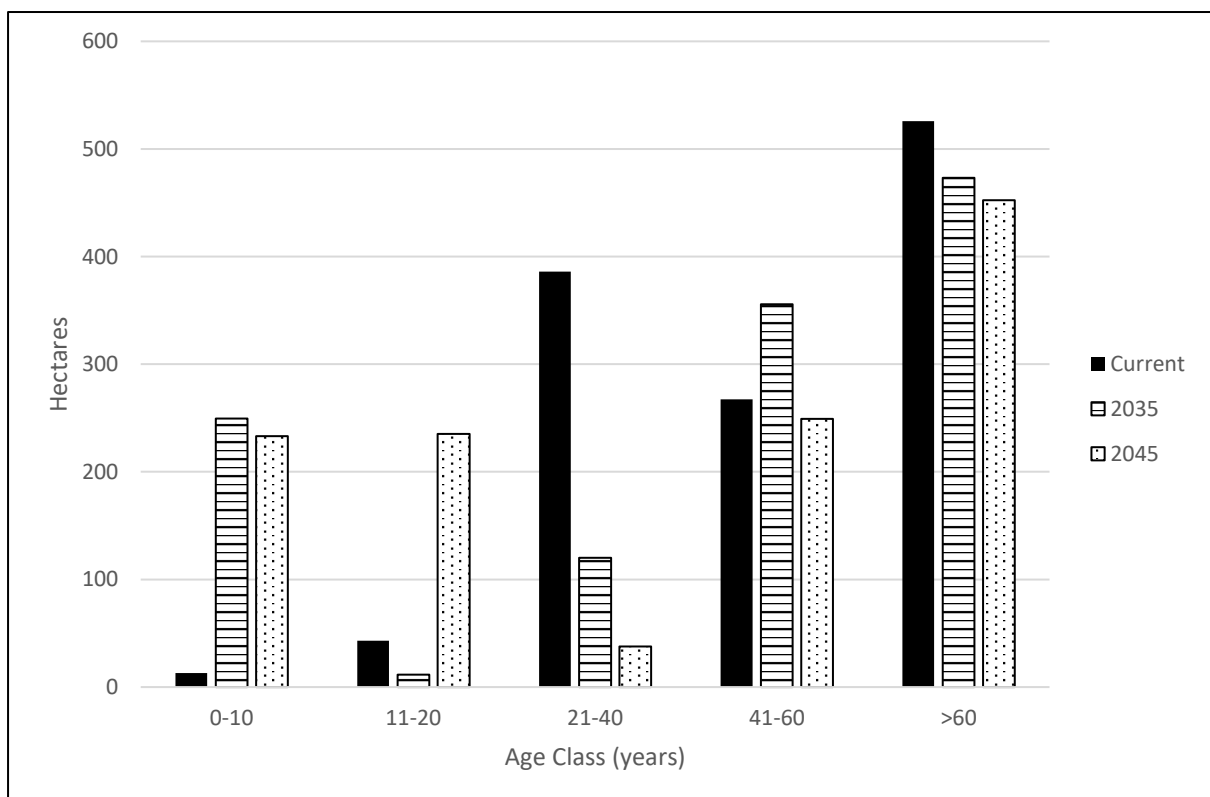


Table 2: Planted area by age

Age Class (years)	Current Area (ha)	%	Year 10 Area (ha)	%	Year 20 Area (ha)	%
0 – 10	13	1%	250	21%	233	19%
11 – 20	43	3%	11	1%	235	19%
21 – 40	386	31%	120	10%	38	3%
41 – 60	267	22%	356	29%	249	21%
60+	526	43%	473	39%	452	37%
Total	1235	100%	1210	100%	1207	100%

Figure 2: Area by age



A.8 Plant Health

Dothistroma Needle Blight (*Dothistroma septosporum*, DNB) is a fungal disease of pine trees that causes premature needle defoliation and loss of timber growth, and may lead to death. It was first recorded in lodgepole pine and Corsican pine at Tentsmuir prior to the previous Forest Design Plan (2012-2022). The lodgepole pine was found to be the most severely affected and most stands were felled. Thinning intensity trials were undertaken in affected Corsican pine stands to increase airflow among the trees, and they have shown a good level of recovery as the most recent DNB survey (2023) showed a reduction in the severity grading of most stands in the forest.

Conifer root and butt rot (*Heterobasidion annosum*) is another disease of conifer trees that has been found within the forest. It is known to be more severe in sites with a warm, dry climate and so there is a risk of it increasing in severity in the future under projected climate changes. Stump treatment will be required to prevent the risk of it spreading to adjacent mature trees after harvesting and thinning.

The Large Pine Weevil (*Hylobius abietis*) can cause extensive damage to young trees on restocked clearfell sites. Tentsmuir has historically been managed using continuous cover forestry approaches and therefore there have been few large restocking sites in recent years. Consequently the risk to restocking the large windblow areas is unknown and will need to be monitored.

Ramorum Disease (*Phytophthora ramorum*) is a disease that mainly affects larch trees, which is causing extensive mortality in the west of Scotland and is spreading eastwards across the country. The risk to larch within Tentsmuir Forest is low due to there being a small number of mature trees lining a limited number of roads and the forest is out with Forestry and Land Scotland's Priority Action Zone. Therefore no pre-emptive removal is proposed in this plan, although the health of the trees will be monitored and if the risk to these trees increases during this plan period they will be removed at thinning.

Resin-top disease, also known as pine top rust fungus (*Peridermium pini*), has been recorded in pines along the east coast of Scotland and Thetford Forest in England, and may be present in Tentsmuir. This may pose a risk during tree harvesting and should be assessed for prior to harvesting work.

B. Analysis of Information

B.1 Constraints and Opportunities – and Concept

Table 4 describes the opportunities and constraints for each objective, and how they will be addressed in the design concept. Map 3a shows the overall concept.

Table 3. Opportunities and constraints to concept

Objective	Opportunity	Constraint
Productive forestry: Promote timber quality, stability, tree health and natural regeneration.	Majority of forest is already managed under LISS. There are good levels of natural regeneration under the mature crop as a consequence of well-managed herbivore numbers. Accessible site for winter working. Well established road network. Flat, solid ground makes it suitable for regular interventions using conventional harvesting equipment.	DNB could impact on growth rates in mature pine crop and impact growth response to thinning. Mature pine trees may become unstable due to the high water table. Thinning may exacerbate stability issues if the pine is relying on enmeshed roots of other trees to be stable. Some access routes have become overgrown and/or degraded, and require upgrading for operational use. Road repairs are very expensive as no borrow pit in the block. Timing constraints for protected species impacts operational window.

		Windblow clearance from Storm Arwen has taken precedence over local thinning programme and so some coupes have missed thinning interventions.
Productive forestry: Manage the future species choice to concentrate on productive forestry where possible but also diversify to improve future resilience and enhance biodiversity.	Opportunity to diversify the species within the forest. Regeneration tends to be dense birch, which could be thinned to produce a productive element. There is some pine and Sitka spruce regeneration, and sycamore and beech on richer soils. Strip felling has been used successfully in the past to establish alternative species (often Sitka spruce), to take advantage of shelter from the mature crop, particularly to protect young trees from frost damage. Forest is low lying and sheltered and has potential to grow alternative species. Public interest in increasing use of native species and broadleaves.	Current species regeneration is not necessarily the species we want for the next generation (e.g. lodgepole pine, Sitka spruce). Low levels of pine regen under mature pine crop. Past management of some coupes for non-timber benefits has led to poor form in retained crop trees. Poor form may also be related to provenance. Deer and hare pressures at Morton Lochs/Fetterdale may impact establishment across windblow site. Future climate becoming drier will be less suitable for spruce.
Coastal flooding and erosion: Begin pre-emptive actions to reduce impacts of	North coast high flood risk area almost matches Storm Arwen wind blow area, with a few additional attached areas. One inundation is unlikely to affect infrastructure of roads and paths.	Salt toxicity impacts tree productivity. Drought tolerant species can also be more tolerant to salinity. There may be other factors FLS can't pre-empt if an inundation happens, such as debris and fallen trees causing eddies and wash outs.

inundation from sea for high risk areas (1 in 10 year risk).	Erosion is likely to be more gradual in areas where dunes protect the land.	Erosion is already happening along the north coast and is anticipated to increase. Flood events will impact public use of core paths in this area.
River flooding: Begin pre-emptive actions to reduce impact of flooding of Powie Burn in next 10 years.	Wetter, flood prone areas give an opportunity to shift towards riparian broadleaves along the Powie Burn, creating a new wetland habitat link. Opportunity to link the Powie Burn riparian habitat across the forest to the Lundin Burn. Beaver presence may increase the development of wetland habitat. Spruce is reaching terminal height, providing an opportunity to fell and restock with wet woodland species.	Areas through the forest are already partly flooding or have higher water table. Flooding may impact on stability of commercial crops and access for harvesting operations. Beaver activity noted along the Powie Burn which increases risk of flooding in this area. Flooding in vicinity of Ice House road will impact visitor experience and potentially safety.
Drainage: Monitor and assess the drainage network so that it does not impact on the operations or access in the forest.	Water from drains and Powie Burn is disgorging into dune slacks, creating a valuable wetland habitat. Beaver activity in the forest helping to create a wetland habitat.	Sand dunes are blocking the drains and Powie Burn from reaching the sea, causing drains to back up. Dune slack is forming along the length of the beach, limiting public access to the beach. Water is starting to back up the drains, risking flooding the Kinshaldy car park and some internal paths.

		The water channel that used to stop people walking to the beach south of the car park has dissipated, so people are spreading into what was a quieter area for wildlife and horse riders. Drain at NE corner is critical to drainage for a large area, recent blockage and heavy rainfall during winter 2023 demonstrated its critical role. Poor drainage is likely to impact on tree species suitability in the future as sites become waterlogged, especially pine.
Windblow: Take opportunities to create a new windfirm edge along north and east coasts and around Morton Lochs.	Windblow on north coast presents opportunity to restore dune habitat processes. This area is the most likely to be inundated by the sea in the future, so tree removal may have been necessary in the next 10 years anyway. Wind blow round Morton Lochs allows conversion to broadleaved habitats to expand and connect habitat with Fetterdale. East coast windblow gaps can be used to establish young trees and develop a more windfirm edge.	North coast edge may be vulnerable to further windblow events from the north. New broadleaf planting will require protection from deer, hares and rabbits.
Access: Ensure appropriate levels of access	Forest has an extensive road and ride network; when kept clear of vegetation these deliver multiple benefits by providing open ground for biodiversity, wildlife	North coast perimeter road has a 1 in 10 year risk of being damaged by inundation, potentially destabilising sand round it. Road could become blocked by shifting sand. This could

for forestry operations, emergency services and the public.	management, open views into the crop which are preferred by visitors, and they act as fire breaks. New route: opportunity to create east/west route parallel to main Kinshaldy road, which could be used to keep pedestrians/cyclists off the main vehicular route in. Access to beach: opportunity to create year-round beach access route from Kinshaldy car park that concentrates disturbance into one area and reduces fragmentation of dune system through multiple informal paths. Accessible trail: opportunity to increase the offer by providing an accessible trail. Opportunity to increase facilities for horse riders in south of block, including track through to beach.	affect forestry, emergency services and general public as it is a Sustrans route and Fife Coastal Path. Tayport access: Although this is not on FLS land, approx 60,000 visits come in this way. It currently experiences coastal inundation, however it is also at high risk (1 in 10 year) from river flooding. This also affects the Sustrans route and Fife coastal path. Sand road: has historically been difficult to keep to a high standard due to it cutting through the internal dunes, and the sand collapsing onto the road causing soft spots. Ice House trail is the only waymarked trail and currently it is wet in places and diverted due to windblow. Access to beach: Multiple accesses to beach across sand dunes no longer possible in winter months due to dune slack. Accessible trail: unfortunately unlikely to be able to make path to beach accessible, due to shifting sand. Lack of borrow pit means high cost of bringing stone to forest for new road building.
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		Several of the roads and rides have become overgrown with vegetation and regen, limiting or preventing access.
Visitor experience: Look for opportunities to enhance the quality of visitor experience across the forest.	Opportunity to create an all ability access path and observation point on the Ice House trail can also provide a shorter loop option for walkers. Opportunity to create a short all abilities access path from the South picnic area past the toilet block onto the dunes, creating a platform with views to the beach, St Andrews and Barry Buddon. Opportunity to update and increase visitor information at Tayport and Morton Lochs entrances to communicate future management plans following Storm Arwen.	Flooding and coastal inundation threaten viability of long distance coastal path north of sand road, and Ice House trail, which is the only waymarked visitor trail. Facilities: Toilet block at Kinshaldy is old and coming to end of life. Kinshaldy car park is bare after pines were removed. Coin operated barrier is inconvenient for visitors (note new payment infrastructure is being installed). Proximity to urban areas encourages wild camping which presents an ongoing fire risk, particularly in the north end of the forest.
Protected species: Manage land for protected flora and fauna species to improve habitats.	Flora: Several patches of twinflower within old growth pine. Lichen beds are on the edge of the forest that could be expanded. Moths and butterflies were thriving along the sheltered clearings along the Ice House road. These edges also added variety to the Ice House trail along the Ice House road. Red squirrels: LISS conditions have been ideal for red squirrels, providing abundant uninterrupted nuts and seeds.	Twinflower bed in north east is in vulnerable area for flood risk. Lichen beds are vulnerable to damage by people trampling on them and impacted by shading from adjacent crop. Birch regen on the beds is an issue. Moths and butterflies: maintenance of clearings has not happened recently.

	Nesting raptors are nationally important and their presence at Tentsmuir is valued by local community. Lowland dry acid grassland provides habitat for birds, butterflies and increases habitat diversity within the forest. Numerous fire ponds throughout the forest provide habitat.	Red squirrels: gradual change away from pine species may reduce seed/nut source in some areas. Natural regen is encroaching on open habitats. Invasive non-native species (Rhododendron) in south of block
Designated site protection: Ensure neighbouring sites are maintained or improved as a result of FLS activities.	Forest is adjacent to an internationally important coastline for seabirds and seal colony, attracting visitors to FLS site. Dunes and dune slack are nationally important habitats and act as buffer between forest and sea. Grey dune at Tayport Heath is managed by NatureScot volunteers. Morton Lochs are popular for wildlife watching and restocking with a mix of native broadleaves and Scots pine will deliver multiple non-timber benefits in this area.	Conifers and birch seeding onto designated open ground within and adjacent to the forest negatively impacts their condition. Visitor pressure from Kinshaldy car park crossing dunes to the beach in multiple places has created an extensive network of paths, causing wildlife disturbance and damage to the fragile dune ecosystem. Dune restoration and continued management to prevent species seeding is expensive. Sitka spruce on LEPO is not an appropriate species for this site.
Designated site protection: protect heritage	WW2 Scheduled Monuments (SM) within and on the edge of the main Tentsmuir block present opportunity to highlight the history of the site.	WW2 SM are becoming submerged in shifting sands.

features within the forest.	The Ice House is popular with visitors, though it is not owned by FLS.	Some features are within the forest and areas of seeding pine regeneration.
Forest health: Monitor and respond to DNB and other diseases within the crop.	Forest is surveyed three yearly to monitor the development of DNB. Corsican pine is more badly affected by DNB than Scots pine, but mature trees are not dying so far.	Natural regen of pine is looking weak in some areas, could be lack of light as well as DNB. Climate change and drought may increase susceptibility to DNB and other diseases. High visitor numbers can accidentally introduce diseases.
Wildfires: Increase wildfire resilience measures to reduce risks and support emergency response.	The main forest block has an extensive network of roads, rides and paths that can act as fire breaks and provide access for incident response if well managed. Drains, watercourses and riparian woodlands can help to fragment the block by acting as fire breaks. Fire ponds across the forest could be used for response if they are accessible. Broadleaved and mixed woodlands have a lower risk of burning than coniferous woodland. Irregular and group shelterwood systems have a lower wildfire risk than young and even-aged conifers.	Wild camping has caused a number of wildfires, particularly in the northern end of the forest. Windblow along northern edge has caused people to move further into the crop to camp. Climate change is increasing and extending the period of wildfire risk from spring and summer into autumn. Lack of roadside vegetation clearance has led to overgrown rides and roads with trees and gorse. This hampers emergency services access and reduces ability of rides and roads to act as fire breaks. Gorse is high fire risk vegetation. Windblow and heavily thinned pine with DNB has increased amount of deadwood and growth of ground vegetation. This

		increases fuel load for surface fires and may act as ladders for fire to reach tree crowns. There are a number of homes within the forest and a major gas pipe infrastructure in north of forest.
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Concept

A sustainable supply of timber will be maintained by managing the future species choice to concentrate on timber and wood products where possible, and also by diversifying species to improve future resilience and enhance biodiversity. The mature Sitka spruce harvesting will be planned, and thinning will be carried out to promote timber quality, stability, tree health and natural regeneration of both conifer and broadleaves. Future species selection will take account of future suitability under projected climate change scenarios and the prevalence of DNB within the forest.

The forest's resilience to future threats of climate change will be improved. A wind firm edge will start to be developed by diversifying the age and height of trees, by planting broadleaves in windblown gaps and underplanting where natural regeneration is not already present. The windblown area along the north coast provides the opportunity for a significant sand dune habitat restoration project which will deliver benefits for both biodiversity, by connecting two restored dune areas managed by NatureScot, and coastal resilience in the face of sea level rise and future erosion and inundation.

Biodiversity within the forest will be supported and enhanced by developing riparian networks and expanding native woodland networks, particularly by creating a habitat link between Morton Lochs NNR and the main forest block and taking opportunities to develop a north/south link to Earlshall Muir SSSI along the Powie Burn, which is at high risk of flooding. Priority open habitats will be maintained or improved by clearing natural regeneration of trees on the designated sites along the east coast and within the restored lichen beds. Any reduction in mature pine will be gradual, to allow other species to mature and maintain the food supply for priority species. There will be a programmed removal of Sitka spruce from the LEPO areas.

Access routes through the forest will be maintained or improved. A core haulage route will be managed to reduce the interaction between visitors and timber haulage. Alternative public access routes around the north east and along the Ice House waymarked trail will be identified in the event of future flooding. Public access improvements will be identified, including additional parking facilities, a non-vehicle east-west link to the beach, and an all ability access path. A programme of roadside vegetation clearance will be implemented along priority roads and green rides that will deliver multiple objectives by improving access for operational staff (including wildlife management), visitors and to assist emergency response efforts, as well as acting as a fire break and improving habitat conditions for important species such as butterflies and rare plants previously recorded along open road and ride edges. Access to fire ponds will be improved where possible and small areas of

windblow cleared and deadwood levels managed to reduce the fuel load in northern area of block.

Deer numbers will continue to be managed by providing management access particularly along the road and ride network, and by using protection measures for the most susceptible trees species using tree guards (to be recorded and removed once redundant) and by maintaining the condition of the fenced area. Invasive non-native species will be removed from the forest.

The historic environment will continue to be protected via the maintenance of the Scheduled Monument and heritage features.

A programme of monitoring and drain maintenance will be implemented to improve our understanding of what impact the drains have on the site and neighbouring land to inform future drainage management.

C. Management Proposals

C.1 Silvicultural Practice

Tentsmuir is a flat site with an extensive road network which is accessible year-round. Historically regarded as sheltered with a low wind throw risk hazard classification, the forest has until recent years been thinned regularly and managed using irregular shelterwood management, with small clear fell or clear fell with seed trees coupes. In some coupes, a strip shelterwood system has been established to achieve natural regeneration and transform Sitka spruce and Scots pine monocultures to a low impact silvicultural system intended to promote structural diversity.

Sitka spruce is anticipated to become less suitable in Tentsmuir in the future due to the climate becoming drier. Consequently, during this plan period, areas of Sitka spruce previously designated for irregular shelterwood management have been phased for felling. Where mature Scots pine and Corsican pine are present as strips, the Sitka spruce will be selectively felled to transition these stands to alternative species more suited to the anticipated future conditions in the forest, and the mature pine will be retained.

The remainder of the forest will be managed using Low Impact Silvicultural Systems, with stands regularly thinned to promote wind stability and improve the quality of the crop,

protect the soil and soil biota. Broadleaved species will be managed productively away from riparian edges to benefit from the different ecosystem services these provide, such as habitat for biodiversity, fibre and wood products, soil condition, and for their aesthetic value.

C.2 Prescriptions

C.2.1 Felling

Sites proposed for clear felling in the plan period are identified as Phase 1 and Phase 2 management coupes on Map 4. Refer to Table 4 for scale of felling. They are mainly Sitka spruce stands either impacted by windblow or reaching terminal height. Coupes containing a mix of Sitka spruce, Scots pine and/or birch are identified for selective felling. Selective felling will remove Sitka spruce from the coupes and retain mature Scots pine and birch. These trees will be retained to provide multiple benefits, by acting both as a seed source and to retain the biodiversity and aesthetic value of these trees, to protect soil mycorrhizal communities, and provide shelter to protect the younger trees from winter frost. Selective felling will be applied to coupes 59902, 59903, 59904, 59907, 59908, 59909, 59916 and 59923.

No Phase 4 felling coupes have been proposed as the intention is that the forest will be managed using low impact silvicultural approaches after Phase 3.

Stands adjoining felled areas will be retained until the restocking of the first coupe has reached a minimum height of 2m. There are no Phase 1 and 2 clearfell coupes identified in this plan with adjacency issues. For any future clearfell coupes where adjacency is not possible, and there is no exemption under the Scottish Forestry Act, an amendment will be discussed and agreed with Scottish Forestry before the coupe is felled.

Any other planned tree felling (e.g. selective felling, felling of individual trees, or felling of coppice) is shown on Map 5.

Other tree felling in exceptional circumstances

FLS will normally seek to map and identify all planned tree felling in advance through the LMP process.

However, there are some circumstances requiring small scale tree felling where this may not be possible and where it may be impractical to apply for a separate felling permission due to the risks or impacts of delaying the felling.

Felling permission is therefore sought for the LMP approval period to cover the following circumstances:

Individual trees, rows of trees or small groups of trees that are impacting on important infrastructure (as defined below*), either because they are now encroaching on or have been destabilised or made unsafe by wind, physical damage, or impeded drainage.

*Infrastructure includes forest roads, footpaths, access (vehicle, cycle, horse walking) routes, buildings, utilities and services, and drains.

The maximum volume of felling in exceptional circumstances over the plan area covered by this approval is 75 cubic metres per calendar year.

A record of the volume felled in this way will be maintained and will be considered during the five year Land Management Plan review.

[N.B. Trees may be felled without permission if they: are of less than 10 cm diameter at breast height (1.3 m); pose immediate danger to persons or property; are completely dead; or are part of Authorised Planning Permission works or wayleave agreements].

C.2.2 Thinning

Potential sites for thinning in the plan period are identified on Map 5. Table 5 indicates the potential area. Thinnings are intended to promote timber quality in the remaining trees and manage the species mix in the stands to favour Scots pine over Sitka spruce where spruce are regenerating in the forest. Thinnings will also target sycamore for removal around Fetterdale and Kinshaldy where they are reaching the upper pine story but are of poor form.

Due to the suitability of Tentsmuir and its historic management the LISS area for the forest comprises the majority of the area. The forest has been split into large thinning coupes, and the management coupes contained within the thinning coupes will be surveyed and stratified for thinning. Operations in all thinning coupes will be carried out at least once during the plan period.

Thinning will normally be carried out at, or below, the level of marginal thinning intensity (i.e. removing no more than 70% of the maximum MAI, or YC, per year). Higher intensities (no more than 140 % of maximum MAI, or YC, per year) may be applied where thinning has been delayed, larger tree sizes are being sought or as part of a LISS prescription. In all cases work plans will define the detailed thinning prescription before work is carried out and operations will be monitored by checking pre and post thinning basal areas for the key crop components.

C.2.3 Low Impact Silvicultural Systems (LISS)

Areas identified for LISS management are shown on Map 4. In total, 1168 hectares (76%) of the forest will be managed using LISS.

The forest has historically been managed predominantly using lower impact silvicultural systems to regenerate trees whilst maintaining continuity of tree cover for environmental benefits. The principle system has been irregular shelterwood with a steady reduction in the overstory. We propose to maintain this management approach across the majority of the forest, where the older pine canopy is opened up gradually through successive regenerative fellings to increase light levels and release the young trees that are regenerating beneath in stands old enough to provide a seed source. This system is intended to promote structural diversity and maintain continuity of habitat and aesthetic nature of the forest whilst allowing the next generation of trees to develop. It will also provide protection against frost damage and help suppress rank vegetation which is a known issue on clearfell sites in the forest.

A strip shelterwood system is planned in coupes 59109, 59113 and 59120 where the 1980s Corsican pine is most impacted by DNB. The strips will be oriented on a SW/NE direction in line with the prevailing wind direction, and restocked with Scots pine and allowed to regenerate with birch. The approach is intended to diversify the species in these stands whilst protecting the planted trees from winter frosts.

C.2.4 Long Term Retentions (LTR) / Natural Reserves / Minimum Interventions

Stands identified as Minimum Intervention are shown on Map 4. Note there are no areas of LTR or Natural Reserve in this LMP. Minimum Intervention coupes are intended to be areas of forest prioritised to allow natural processes by minimising operations to only those necessary to ensure safety. In total, 50 hectares (3% of the forest area) have been identified as minimum intervention around Morton Lochs SSSI and NNR, the Powie Burn (where a wet woodland is already developing due to regular flooding) and along the south edge of the forest, also developing a wet woodland habitat as well as for protecting priority species.

C.2.5 Restocking Proposals / Natural Regeneration

Planned restocking of felled areas, and proposals for the future habitats and tree species over the whole plan area are shown on Map 6. See Table 6 for areas, establishment, and mix proportions. Timing of restocking will comply with the plan tolerance table shown in section C.4.

Where required, the choice of ground cultivation technique will consider the short-term benefits for establishment against any long-term side effects on tree stability, access for future forest operations and the environment. There will be a preference for the least intensive technique.

Stocking densities will be at least 2500 stems per hectare for conifers and 1600 stems per hectare for broadleaves unless justified elsewhere in this plan. If the restock or natural regeneration should fail to reach these levels the site will be beaten-up to the required planting density. This will be assessed at year 3 and year 5 after planting with beat-up by at least year 5.

There will be a preference for natural regeneration of native woodland areas. Any non-productive broadleaf planting will be native to the area and will complement existing naturally growing scrub and woodland to give the most ecological value.

The Restocking Strategy for Scotland's National Forest Estate explains that we will minimise chemical usage in restocking (insecticides and herbicides) by considering options at the site scale, and using tactics such as delayed planting to achieve this.

Table 5: Scale of Proposed Felling Areas

Total Plan Area			191 ha							
Felling	Phase 1	%	Phase 2	%	Phase 3	%	Phase 4	%	LTR	%
Area (ha)	66	4.5	52	3.5	73	5	0	0.0	0	0.0

Table 6: Thinning

Thinning over the first 10 years of the plan	Area
Total area where thinning may be undertaken during the plan period	1152 ha

Table 7: Restocking

Felling Phase	Map Identifier (coupe number)	Species to be planted - or established through natural regeneration (nr)	Area (ha)*
1 (previously felled)	59101	MB nr 80%, MC 20%	45.4
1 (previously felled)	59125	SP nr 50%, BI nr 30%, MB 10%, open 10%	5.0
1 (previously felled)	59129	SP nr 40%, BI nr 40%, MB nr 10%, open 10%	6.2
1 (previously felled)	59130	MB nr 50%, open 50%	3.4
1 (previously felled)	59144	SP 50%, BI nr 30%, MB nr 10%, open 10%	12.2
1 (previously felled)	59190	Open (dune restoration)	0
1	59906	Open (visitor services event space)	0
1	59904	MB nr	6.4
1	59922	MB nr 70%, MC nr 20%, open 10%	1.1
1	59903	MB nr 70%, SP nr 30%	5.6
1	59902	DF 65%, MB nr 15%, SP nr 10%, SS nr 10%	16.2
1	59908	MB nr	1.9
2	59916	MB nr 55%, SP nr 20%, open 25%	10.7
2	59909	SP 50%, MB nr 40%, open 10%	5.4
2	59907	DF 40%, SP 40%, MB nr 20%	13.9
		Total Restocking Area (ha)	133.4

*net area to be planted excluding designed open ground

C.2.6 Protection

Management of deer is an underpinning activity essential for the delivery of benefits from Scotland's National Forest Estate. The aim is to manage healthy wild deer populations and manage deer impacts across the Estate consistent with the carrying capacity of the land and successful delivery of FLS land management objectives. Deer Management Plans direct the priorities for management and are available on request.

Deer numbers are well managed in Tentsmuir, which has allowed the establishment of dense broadleaf natural regeneration, particularly birch but also sycamore and beech in some areas. Therefore deer management will be the primary approach to protecting young trees.

C.2.7 Fence erection / removal

No fencing changes are planned for this LMP.

C.2.8 Road Operations

Map 7 shows the existing forest road network, timber haulage egress points, and projected timber volumes. There are no local 'Agreed Timber Transport Routes'. There are no planned new roads or quarry expansions in the plan period.

The forest road network is important for recreation and repairs to the main perimeter road and Fetterdale road will be suitable for recreation users. An indicative new route through the forest has been identified on the concept map (Map 3) as a contingency to future flooding or sand movement blocking access in the north east area of the forest. At this time there is no intention to start building this road. However if events change during the plan period, the necessary EIA scoping will be submitted.

C.2.9 Public Access

Visitors are welcome to explore FLS land, and will only be asked to avoid routes while certain work is going on that will create serious or less obvious hazards for a period (e.g. tree felling). Scotland's outdoors provides great opportunities for open-air recreation and education, with great benefits for people's enjoyment, and their health and well-being. The Land Reform (Scotland) Act 2003 ensures everyone has statutory access rights to most of Scotland's outdoors, if these rights are exercised responsibly, with respect for people's privacy, safety and livelihoods, and for Scotland's environment. Equally, land managers must manage their land and water responsibly in relation to access rights, and FLS will only restrict public access where it is absolutely necessary and will keep disruption to a minimum.

The main access points to the forest, car parks, toilets, play park and picnic areas will continue to be maintained. We have additionally identified the following potential projects that will be dependent on securing funding: improved equestrian parking; an accessible for all path and viewing platform at the main car park; improved toilet and picnic facilities at the main car park; a non-vehicle east/west access route for walkers and cyclists that avoids the main forest drive; an additional car park at the main forest drive entrance; improved picnic area and interpretation facilities at the Tayport entrance; improved visitor interpretation boards for woodland, dunes and historic environment features; and a more resilient waymarked trail to the Ice House from the car park avoiding high flood risk areas. These are identified on Map 10.

Woodland Management in Visitor Zones

Tentsmuir has high visitor numbers, particularly around the Kinshaldy and Tayport entrances but also at Morton Lochs, and the primary Visitor Zones have been identified in areas where FLS encourage and manage access or where the woodland managed by FLS interacts with popular visitor sites or access routes. These are shown on Map 3.

In these areas, single trees or small groups of trees will be removed when necessary to protect facilities, infrastructure and trails, or to enhance the setting of features, or to maintain existing views.

Woodland in these zones will also be thinned, or trees re-spaced, for safety reasons (including to increase visibility to ensure that sites are welcoming and feel safe) and where it is necessary to enhance the experience of the forest setting, through the development of large trees, or preferential removal of trees to favour a particular species.

C.2.10 Historic Environment

Our key priorities for archaeology and the historic environment are to undertake conservation management, condition monitoring and archaeological recording at our significant historic assets; and to seek opportunities to work in partnership to help to deliver *Our Past, Our Future: the Historic Environment Strategy for Scotland* and *Scotland's Archaeology Strategy*. Designated historic assets and significant heritage features will be protected and managed following the *UK Forestry Standard* (2023) and *UKWAS* (2024). Harvesting coupes, access roads and fence lines will be surveyed prior to any work being undertaken in order to ensure that upstanding heritage features can be marked out and avoided. At establishment and restocking, work prescriptions remove relevant heritage features from ground disturbing operations and replanting. Where appropriate, significant

heritage features are recorded by archaeological measured survey, see active conservation management and may be presented to the public with interpretation panels and access paths. Opportunities to enhance the setting of important sites and landscapes will be considered on a case-by-case basis (such as the views to and from a significant designated historic asset).

The Regional Historic Asset Management Plan includes conservation management intentions for those designated historic assets on Scotland's national forests and land. Details of most known heritage features are held within the Forester Web Heritage Data (built using national and regional historic environment records) and included within operational planning to ensure damage is avoided. Designated historic assets and significant heritage features will be depicted on the supporting Heritage Map. Designated historic assets, significant heritage features and relevant heritage features will be depicted on all relevant operational maps.

Map 9 and Appendix II provide more information about the designated historic assets, significant heritage features and relevant heritage features within and adjacent to the plan area. Restocking in coupe 59124 will require particular care as it lies within the SM. This will require Scheduled Monument Consent and liaison with Historic Environment Scotland. Restocking in this coupe is intended to develop a more windfirm edge but must be designed to avoid impacting the sea views from the pill boxes. The careful removal of trees and natural regeneration which impact on the cultural and historic setting of these features will be assessed during thinning operations.

C.2.11 Biodiversity

UK Forestry Standard guidance is to manage a minimum of 15% of the forest management unit with conservation and the enhancement of biodiversity as a major objective. The figure for this plan is 99%, as enhancement of biodiversity is a major objective for both the LISS and clearfell with seed trees (selective felling) management across the forest. The forest contains a number of protected species; the timing of management activity will be planned to avoid disturbance during nesting seasons and surveys will be undertaken by FLS environment rangers in coupes at the work planning stage. FLS retain confidential records of known locations of protected species and these will be referred to for any phased operations. In addition, a site survey for proposed work areas will be carried out in advance and will include marking of any protected habitats, and applying for any necessary disturbance licences. Pre-commencement meetings will be undertaken to ensure that those carrying out the works are shown and made aware of protected areas.

This LMP includes restoring 51 hectares of afforested dune habitat along the north coast (River Tay estuary) that was exposed by Storm Arwen in 2021 (subject to EIA screening, see Section C.3). The proposed restoration recognises the importance of coastal sand dune habitats, which is a priority habitat on the Scottish Biodiversity List. It will contribute to the Scottish Government's 2023 Biodiversity Strategy and specifically its Blue Economy vision that by 2045 coastal environments are restored, adapted and resilient to climate change and sustainably managed to achieve good environmental status. Dunes fulfil important functions for coastal protection, by sheltering inland habitats from coastal flooding (see hydrology C.2.15), and provide habitat for a range of specialist and rare species, including invertebrates, butterflies, orchids, lizards and toads.

Coupe 59101 will be restocked with mixed broadleaves to provide connectivity to the Lundin burn and the forest around Fetterdale. The eastern coast strip is managed open ground that is designated open habitat and includes a restored lichen bed (coupe 59197).

Riparian corridors across the site are in the process of being widened and planted with native broadleaves following the felling of existing mature stands. These will act as biodiversity networks through the forest connecting the Powie burn and Lundin burn with Morton Lochs.

Opportunities for retaining or creating deadwood will be identified during the planning of all felling and thinning works, favouring areas with the highest deadwood ecological potential. Valuable deadwood and deadwood areas will be marked on contract maps. Areas of minimum intervention will offer some of the best opportunities for the development of standing and fallen deadwood. Where it is safe to do so, standing mature dead trees will be retained as these offer excellent potential for a range of species. Levels of deadwood in the north of the block will be monitored where the fire risk is greatest.

C.2.12 Tree Health

DNB: As pine is the primary species present in the forest, thinning and restocking plans have taken account of this risk by favouring Scots pine over Corsican pine during thinning, and the use of alternative species: Douglas fir, more broadleaves and a small trial of Maritime pine (*Pinus pinaster*) in coupe 59119 which was burnt in 2023, as early trials have indicated it may not be affected by DNB. Regular thinning of the pine stands will ensure airflow through the trees which has been shown to help reduce the severity of the disease.

Hylobius: Tentsmuir has historically been managed using continuous cover forestry approaches and therefore there have been few large restocking sites in recent years. Consequently the risk to restocking the large windblow areas is unknown and natural regeneration will need to be monitored, and where necessary the Hylobius Management Support System used to guide decision making.

Heterobasidion: Stump treatment will be required to prevent the risk to adjacent mature trees after harvesting and thinning.

C.2.13 Invasive Species

FLS will continue to monitor and control for rhododendron. Grey squirrels will continue to be monitored and controlled through partnerships. Naturally regenerating pine and other invasive plants will be removed from designated open habitats along the east coast to improve their condition.

C.2.14 New Planting

There are no areas of new planting proposed in this plan.

C.2.15 Other

Wildfire

FLS continues to work closely with Scottish Fire and Rescue Service (SFRS) to prevent and tackle wildfires that threaten Scotland's National Forests and Land. FLS support SFRS in their lead role for fire prevention and suppression through creating annual fire plans, maintaining a duty rota, and providing additional logistical support. FLS's primary objective is always to protect people's health, safety and wellbeing.

In addition to monitoring deadwood levels in the north of the forest, a programme of vegetation clearance along a network of priority roads and rides will ensure appropriate access through the forest is maintained. Access to fire ponds will be improved where possible during thinning and clearance operations.

Soils

Brash mats (or alternative measures) will be used to protect sensitive soils. Felling residue will usually be left on site to allow nutrient recycling, with consideration for the practicalities of restocking. Where required, the choice of ground cultivation technique will consider the short-term benefits for establishment against any long-term side effects on tree stability,

access for future forest operations and the environment. There will be a preference for the least intensive technique.

Hydrology

Future flood risks along coastal and watercourses will begin to be addressed in this LMP. A wet woodland network will begin to be established along the Powie Burn, which is one of the key flood risk areas within the forest. Along the north and east coasts, the threat of coastal inundation and erosion will be addressed by the proposed dune habitat restoration project by sheltering the forest further inland, and through the gradual establishment of a native broadleaf edge through opportunistic planting where gaps open through windblow. To understand better how the drainage network functions and protects the forest and the visitor infrastructure, a monitoring programme will be established during the LMP period to record water table depths. This will then inform any future drainage maintenance programme.

Utilities, Renewables and other developments

The areas around the main gas pipe are to remain managed as open ground.

The Scottish Water pipeline will require protection during thinning and felling operations. Scottish Water will be notified of operations within 50m of the pipe at least 3 months in advance. Proposals will be required to comply with Sewers for Scotland and Water for Scotland 4th Editions 2018, including provision of appropriate clearance distances from Scottish Water assets.

C.3 Environmental Impact Assessment (EIA) and Permitted Development Notifications

Table 6: EIA projects (in Phase 1)

Total area (hectares) for each project type and details by sensitive or non-sensitive area.					
Proposed work	Sensitive Area		Non-sensitive Area		Total
Afforestation	%Con	%BL	%Con	%BL	0 ha
Deforestation	74%Con	0%BL	26%Con	%BL	51 ha
Forest Roads	ha		ha		0 ha
Quarries	ha		ha		0 ha
Provide further details on your project if required.					
This is a coastal dune habitat restoration project along the North Coast (Tay Estuary). The area is a relic dune system that was planted with Corsican and Scots pine during the Twentieth Century, but which experienced significant wind blow damage during Storm Arwen in 2021. Dune habitat restoration is proposed to connect two existing dune habitats at Tayport Heath and Tentsmuir Point to create the largest dune habitat restoration project in Scotland. 74% of the site lies in the Tentsmuir Coastal Defences Scheduled Monument (SM9712). A separate EIA Screening Opinion Request Form will be submitted for this project.					

C.4 Tolerance Table

See Appendix III.

Appendices

Map 1	Location
Map 2	Current tree species
Map 3	Context and issues
Map 3a	Concept
Map 4	Management (Felling)
Map 5	Thinning
Map 6	Future habitats and species (Restock)
Map 7	Timber haulage
Map 8	Soils
Map 9	Historic environment
Map 10	Visitor services

Appendix I – Consultation record

Appendix II – Historic environment records

Appendix III – Tolerance table

Appendix IV – Initial scoping report

Appendix V – Consultation web and drop in event report