



## Section B – Analysis and Concept

### **B.1 Key Issues and Challenges**

The key issues and challenges across the LMP area are shown spatially in Map 2a Issues and Objectives (Hydrology) and Map 2b Issues and Objectives (Environment). The development of the LMP concepts are explained spatially in Map 3 Concept and Rationale.

The most significant issue that this LMP will address is the management of afforested blanket bog across the LMP area. As identified above, the greater proportion of the LMP area outwith the most recent acquisitions comprises deep peat that was planted throughout the twentieth century. The key challenge is to restore this to functioning blanket bog habitat as rapidly as possible to arrest the process of drying which accelerates carbon loss.

Beyond that the key issue is to maximize the productive potential of mineral soils across the remainder of the LMP area and in particular focus on making sure that the investment already made in establishing large areas of productive broadleaves is protected through good silvicultural stewardship. Linked to this is addressing any historical drainage patterns which do not conform to today's more rigorous UKFS Forest and Water Guidelines.

At sites such as Rumster Forest and Stanstill the second rotation structure of productive woodland coupes within a more permanent network of native and riparian woodland is beginning to take shape and it is a priority to enhance this across the woodland element of the whole LMP area whilst ensuring that deer management is sustainable.

The final significant issues which became clear during the LMP analysis are the social and cultural elements of forest management over the Caithness LMP area. Although a number of older facilities have been downgraded by signage removal there is considerable demand for the forest trails at Newtonhill Woodland and Sibster Forest. Additionally there is considerable heritage interest across the LMP area with a number of scheduled monuments and many unscheduled heritage features. These remnants of human history were not sufficiently protected during the afforestation operations of the past and it is now essential that they are identified and that protection is enhanced in the second rotations.

In general terms the NFL across the Caithness LMP area is undergoing a period of significant landscape scale change driven by the climate and nature emergencies and the need to address the more negative aspects of the legacy of past large-scale afforestation.

### **B.2 Constraints, Opportunities and Concept**

The following is a discussion of the constraints and opportunities identified throughout scoping, relative to each LMP objective identified in section A.5. The concept of how the objective will be delivered is detailed for each objective.

**1. We will optimise the productive potential of the forests at Stanstill, Rumster, Achairn and Braehour by removing poor quality crops and then matching restock species to site conditions to create resilient forests for future productivity.**

Constraints

The primary constraints in restructuring the twentieth century conifer plantations are centred around soil. Deep peats and the wettest of the gleys have a high moisture regime and often in the north that is accompanied by a very low nutrient regime. In addition many sites are exposed so climate also limits tree growth and management potential. These sites were not chosen for afforestation because they are particularly suited, often it was simply because they represented the poorest areas and were unsuitable for agriculture.

Opportunities

Despite the scenario detailed above, in the transitional zones between the bogs and the better agricultural land there is often a mosaic of soil types including drier gleys, podzols and even some upland brown earths. These may still have some challenges centred around nutrient regime but they have some flexibility for the management of tree crops if silvicultural practices are amended to ameliorate the less favourable factors.

Concept

This LMP proposes that the focus for second rotation crops must not be about altering site conditions through invasive ground preparation and the application of inorganic fertilisers. We propose it's more sustainable to adopt silvicultural principles that will help to build healthy and carbon rich forest soils, maintain the biomass of vital mycorrhizas that support tree growth and that combine small clearfell coupes of site-suitable species with a permanent network of native woodland. While some may perceive this to signal a huge drop in productivity there is little evidence to support that claim, in particular when the historical low volumes recovered from some areas due to disease and windblow are factored in. The continued work towards gathering detailed soils data will allow site-suitable tree species to be selected. The default will be to plant mixtures and to retain some trees on every site to support mycorrhiza biomass even through fallow periods. The period of this LMP will see almost all first rotation crops harvested and so into the 2030s the legacy of poor silviculture should be remedied.

## **2. We will improve the young broadleaf crops at Sibster, Dale and Spittal by identifying a programme of maintenance and formative pruning and replacement of diseased ash.**

### Constraints

The spread of chalara (ash-dieback) across the newly planted forests in Caithness has caused significant mortality and it's no longer considered appropriate to plant new stands of Ash. The threat of other diseases is predicted to increase with climate change and in 2020 the range of the oak processionary moth increased. This may be a concern for the Sibster area where Sessile oak is a principle crop. A further constraint on delivering timely and effective silvicultural interventions with broadleaf management is the need for training staff more used to working with conifer crops. Finally, herbivory, principally by deer could be a constraint on the management of productive broadleaves.

### Opportunities

In areas where ash has died there is now an opportunity to increase species diversity further. There is still sufficient light levels in some places to include improved strains of Silver birch and Aspen for example. In terms of staff professional development Technical Development Branch have already provided some elements of on-site training in the management of young broadleaf crops and this could continue providing a resource that could be extended across the North Region as productive broadleaf crops become a bigger component of the forest. The predicted changes in climate may be better suited to more productive provenances of broadleaf from up to 5 degrees further south. The predicted increase in the severity of autumn and winter windstorms is something that broadleaf crops should be better at resisting, even in the relatively shallow soils across the LMP area.

### Concept

The extensive use of broadleaved species in the afforestation of the last decade was largely experimental at the latitude of Caithness but was based on sound silvicultural principles. Other than the dieback of Ash – a nationwide issue - it has been relatively successful in establishing young woodlands. The coming plan period will offer an opportunity for local staff to build skills in broadleaf management and improve the crops by pruning and perhaps even early thinning. Leaf litter will continue to build forest soils and the flushes of weeds that accompanied the removal of agricultural grazing will begin to abate. A more mature woodland structure will continue to develop under the stewardship of the Beat FM team. The threat of pests and diseases can only really be ameliorated by diversifying species and ensuring trees are suited to site and not in a condition of constant stress.

**3. We will identify afforested deep peat sites with the greatest conservation potential, securing them by woodland removal, hydrological works and creation of a protective broadleaf woodland buffer between open peatland and productive woodland that is restricted to mineral soils on suitable topography.**

#### Constraints

Lack of peat depth information and soils data at too coarse a scale has been an issue in the identification of hydrological units previously. This makes peatland restoration difficult, hampering efforts to impose wetter hydrological regimes. Consequently the threat of tree regeneration is higher. Poaching (the trampling of vegetation by animal feet) by deer has been an issue in one or two areas. There has also been some experience of vegetation not recovering very quickly on Braehour, leading to the increased risk of diffuse pollution by siltation. The lack of a suitably trained and equipped contractor force has been an issue previously but this has largely been addressed.

#### Opportunities

The principle opportunity to progress this much needed work over the coming decade is the continued availability of resource. The Scottish Government has committed to fund peatland restoration across the coming decade. The 'Flow Country' is currently a candidate World Heritage Site and the outcome of that bid will be known within the first phase of this LMP, but regardless of whether it is successful or not the value of the Caithness and Sutherland peatlands has now been well defined as a huge carbon store and a conservation area of global significance. The opportunity to demonstrate that management of the NFL in this area reflects these values and enhances the designated sites now exists with all the support required.

#### Concept

The LMP concept in respect of peatland restoration is simple. We commit to identifying and starting restoration of all restorable blanket bog across the LMP area. We will manage land in accordance with Scottish Forestry guidelines for Caithness and Sutherland Peatlands. In future we will manage the peatlands as open habitats to protect their value as both carbon store and nature conservation sites, managing hydrology and removing non-native tree regeneration. We will seek to work in partnerships with 'Flow Country' stakeholders to continue to raise the profile of this globally unique area and to demonstrate that recovery of peatland from afforestation is practical and achievable.

**4. We will protect and enhance the identified heritage environment features across the LMP area for future generations to enjoy.**

### Constraints

The Scheduled Ancient Monument locations are well mapped however the wider 'heritage features' are often more difficult to find, particularly where first rotation ground preparation like ploughing has dispersed remains.

### Opportunities

As obstructions like windblow is cleared it becomes easier to see remnants on site. The opportunity with the second rotation is to build suitable buffers around the sites to ensure their future protection.

### Concept

All Scheduled Ancient Monuments will be protected by a twenty meter buffer of open space and an appropriate further buffer of broadleaves to be retained long term. Other archaeology will be preserved from any further deterioration.

## **5. We will continue to support and encourage public access across the National Forests and Land and specifically at Newtonhill and Sibster.**

### Constraints

The constraints to encouraging public access lie mainly in getting sufficient resources to meet public demand. Significant demand from residents and from the increasing numbers of tourists in the north can place pressure on low key facilities. The NC 500 for example, has created a marked increase in visitors during the tourist season without being in the position to assist with maintaining facilities. Land which could provide a link between Halkirk and Sibster Forest is not within public ownership.

### Opportunities

Much of what could be seen as a constraint may also be an opportunity. There is a growing recognition of the mental and physical health benefits of spending time in forests and the broader natural environment. There is community interest in working in partnership to deliver recreation and education. Publicly available digital mapping is an area in development. A further opportunity that Newtonhill has benefitted from has been the combination of active community volunteers and funding from renewable energy development funds.

### Concept

The success that the Friends of Newtonhill Wood have had in working on the NFL is a great example of how effective partnership working can deliver community resources. We see this

as a model that could be repeated in Caithness and hope that working with the community and local landowners it is possible to create a link between the village of Halkirk and Sibster Woodlands. We aim to enhance the areas around the car park at Sibster and maintain low key parking at de-badged facilities such as Rumster forest which we know are regularly used. We encourage responsible use of the wider forest and where access for horses and bicycles is inhibited we will look at providing better gate solutions.

**6. We will work with Scotland's Environmental and Rural Services and our neighbours to develop a sustainable, landscape scale approach to deer management and promote the NFL as an exemplar of best practice.**

#### Constraints

Deer browsing and fraying can be a constraint on the development of productive broadleaf crops in particular and on wider areas of native woodland. At Sibster effective deer management can be more problematic where public access at each end of the day is higher. Road traffic accidents can be increased where deer fence lines are badly designed. Deer fencing can exacerbate the effects of poaching and trampling on sensitive habitats such as blanket bogs

#### Opportunities

There remain opportunities to work with North Highland College to help the education of future deer managers at the Dale Farm Campus. As open habitats are restored there may be opportunities to reduce the length of deer fencing across the NFL in Caithness or rationalise the lines of fences. This may also be the case at renewable energy sites.

#### Concept

Sustainable deer management is a cornerstone of successful forest management, but this is especially the case where the aim is to produce productive broadleaf crops and establish large areas of native and riparian woodland, as we propose to do across the LMP area. FLS will continue to participate in local Deer Management Groups where they are active to ensure that the management of deer is sustainable at a landscape scale. Deer management activities will continue to be undertaken in line with best practice guidance using fully qualified and experienced deer managers.

**7. We will continue to make the land within the NFL available to windfarm development and to work with developers to deliver projects of maximal environmental and economic benefit.**

#### Constraints

The constraints to any further development of renewables across the Caithness LMP area are primarily around finding suitable sites that do not conflict with conservation designations and land management objectives. The Planning system, whilst not a constraint, will be the determining factor. FLS believe there is no potential for hydro power development in Caithness at this time. Caithness already has a number of windfarm developments and aggregation of these in the landscape may be a constraint on future developments. Concern from public groups and other stakeholders may also prove to be a constraint on development. While the access to the grid is considered to be good in Caithness, any proposal for developments in more remote locations may be constrained by lack of grid access.

#### Opportunities

There are significant opportunities to continue producing renewable energy across the LMP area. There is a good wind resource in Caithness coupled with strong developer interest and well established grid networks. Renewables developments generally bring community benefit funding that has, for example, paid for the infrastructure at Newtonhill. There is also some potential to accelerate habitat improvements and to increase public access to the countryside through infrastructure. In future there may also be increased potential for redevelopment of the existing sites through 're-powering' with upgraded turbine equipment, creating hydrogen production facilities and developing battery storage capacity. It is also possible that larger scale solar generation using photo voltaic equipment may have some potential.

#### Concept

Renewable energy developments on the NFL can contribute to Scottish Government clean energy targets and support the local economy through employment and supply contracts. We will continue to evaluate proposals for renewables development on the NFL as they arise and where they do not conflict with other land management priorities. We will work with developers to maximise the efficiency and productivity of both the existing and any new sites by considering the emerging potential of battery storage, solar energy production and hydrogen production, ensuring that where developments are taken forward they produce the maximum public benefit in terms of green energy supply.

**8. We will enhance the integrity of all freshwater and wetland habitats during management operations and into the long term by applying measures outlined in UKFS Forest and Water guidance, SEPA guidance and FCS FWPM Guidelines and we will establish riparian and native woodland to enhance habitat connectivity and to provide areas of minimum intervention where nature can thrive.**

### Constraints

Site soil types may constrain woodland development in certain areas. For example where unplantable flushes or bogs border watercourses we will not be able to establish woodland. Where soil types may be suitable for woodland establishment but woodland removal is prioritized to mitigate 'edge effect' we will not establish woodland either. Deer pressure from browsing may prove to be a constraint on establishing native broadleaves. Historical drainage patterns, peat cracking and altered hydrology may make wetland restoration more challenging. Associated with these constraints is the increased risk of diffuse pollution.

### Opportunities

The opportunity to create riparian woodland, establish wet woodland types and advance the move towards a permanent habitat network of native woodland will have many benefits. Associated with this is the opportunity to address the issue of siltation caused by old plough furrows and damaging drainage patterns. This habitat network can allow more natural woodland field layers to develop, forming green barriers that in a climate with more wildfire will be extremely important. The networks will also provide corridors for both flora and fauna to move through the landscape at their own pace.

### Concept

Summer river temperatures are rising which is problematic for salmon and trout reproduction and given the LMP area includes the River Thurso Special Area of Conservation and its tributaries this is of special significance for this LMP. Riparian woodland is acknowledged as a solution to this by providing summer shading. With species like Alder, Aspen and Birch this shade can start to become apparent within five years of planting. We propose to establish riparian woodland and other areas of native woodland to provide habitat corridors, benefitting flora and fauna. Although this removes some land from timber production the benefits in terms of nature, soil health and the provision of a framework in which productive coupes can be managed is greater than the opportunity cost of lost timber revenue.

## **B.3 Analysis of the Previous Plans**

This LMP covers two previous plans – Braehour (approved on 1<sup>st</sup> March 2013) and East Caithness (approved on 25<sup>th</sup> September 2015) – and merges them into one Caithness LMP.

Both outgoing plans shared some common themes:



### Adoption of Improved Silvicultural Practices and the Maximizing of Timber Recovery

Throughout the plan periods a number of conifer crops have deteriorated significantly due to Dothistroma needle blight and the harvesting and peatland restoration teams have developed new techniques to ensure that the maximum amount of timber has been recovered from these challenging sites. In terms of improved silviculture there have been greater attempts to use silviculturally appropriate mixtures and increase the proportion of broadleaved species as evidenced by restocking at Achairn and the new plantings at Sibster and Dale. Much of the area that has been harvested is scheduled for peatland restoration and so there has been limited opportunity for the adoption of improved silvicultural techniques.

### Riparian Woodland Expansion

Both plans listed the expansion of riparian woodland as a key aim. Progress in this area has been mixed. In the newer forests around Halkirk riparian woodland is establishing well within deer fenced areas. In the wider forest where riparian woodland forms an integral part of the restructuring programme progress has been much slower, primarily due to deer browsing. Aspen area at Braehour has been extended in line with LMP commitments.

### Renewable Energy

The continued development of renewable energy generation was a key aim of the East Caithness LMP. This has been delivered with the Halsary and Burn of Whilk windfarms and consenting of the Golticlay windfarm.

### Recreation and Community

Since the approval of the two former plans much has changed in the resource available for developing recreation infrastructure. Some waymarked trails were decommissioned during the period due to lack of use whilst delivery at Newtonhill and Sibster was increased, the former principally due to the excellent efforts of the Friends of Newtonhill. Rural skills and Forest Education Initiative programmes were not delivered due to lack of resource. However the increase in Modern Apprenticeship posts across the Region saw some skills work delivered during the period. The link path between Halkirk village and Sibster remains a target for delivery to help increase active travel but was not delivered during the period due to resource prioritization.

### Peatland Restoration

Understandably there was much focus on peatland restoration in both outgoing LMPs. The Braehour LMP committed to 500 Ha of restoration and between forest to bog and open habitat restoration approximately 730 Ha has been delivered. Progress across the East

Caithness LMP has been a little slower, with felling of peatland restoration coupes being delayed while access roads and renewables sites were constructed. An amendment at Braehour to extend the area of peatland restoration was approved in autumn of 2021.

In summary, while aims to continue with education and recreation programmes were inhibited by a lack of resource, main work streams such as peatland restoration, timber recovery and the expansion of renewables infrastructure has progressed well in line with commitments. Riparian woodland has been expanded in some areas but is falling a little behind what is needed and this is a pressure that will be addressed during the forthcoming plan period.