Clauchrie Forest Design Plan Brief

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Appendix 1 – Analysis and Concept map
1. Background and key information

- Clauchrie has an area of 235 hectares which is predominantly made up of 1st and 2nd rotation coniferous plantations planted between the 1950s and 2007. There are also areas of broadleaved woodland located predominantly on the western slopes of the site in the more sheltered valley area.

- This design plan is a revision of the plan created in 2002 and aims to identify an effective means of continuing to diversify the age structure of the forest as well as creating and working towards management objectives that relate to the Forestry Commissions Dumfries and Borders District Plan.

- There is some variety in the species composition of this site however Sitka spruce is the most prevalent and covers the majority of the area. The previous FDP revision suggested an increase in the net areas of broadleaves, larch, Scots pine, unmanaged open space and other conifers (not including SS) and a reduction in the area of Norway spruce. As Sitka spruce was the main productive species, the previous FDP detailed that its net area should be maintained. However within this revision the area of SS will be reduced given how much potential the site has to grow alternative conifer species and as such comply with the sites primary objectives. No larch will be planted within the first 10 years of the plan due to the Phytophthora ramorum infection.

- Diversifying the age structure of the forest was a key part of the first revision of the Clauchrie design plan. At this point in time the restructuring should be entering its middle phase, with most of the forest area being open ground or in the establishment and early thicket stages with a very low percentage of the area between thicket and over mature. Current data shows that the age classes found in the coupes in Clauchrie match these predictions. However the felling plan for Clauchrie indicates a lot of premature felling of crops, some as young as 33 years old and as such a new felling plan will need to be drawn up.

- The main access point for the site is from a minor road (that runs down from Park to the A76 at Auldgirth) onto the forest road network of the site. There is also access by foot from the north of the site on a core path that runs down the length of the woodland along one of the forest roads.

- Clauchrie in its entirety is a red squirrel priority site. Within the woodland there are fragmented areas of ASNW and LEPO. There is the potential to create habitat networks along riparian zones and this will be investigated during the course of this design plan along with the consideration of the long term restoration of areas of ancient woodland. There are no archaeological features recorded in Clauchrie,
however the property adjacent to the access road of the forest is a listed building and there are a few stone dykes running through the plantation.

- The main soil types within Clauchrie are surface-water gleys and brown earths with a small area of Juncus effusus bog which will be left as open habitat for biodiversity and wildlife.

- The wind categories that Clauchrie falls into are strongly correlated to the altitude of the forest. At the top of the hill there are high DAMS scores ranging between 16 and 20 which become lower as the elevation decreases down towards the boundaries of the site with DAMS scores of 10-14.

- The climate of the site varies from warm, moist and sheltered at the bottom of the slopes to cool, wet and highly exposed at the higher altitudes at the north end of the site. ESC climate change predictions for both low and high emissions in 2050 and 2080 indicate drier summers and wetter winters.

- There are no utilities within the site boundary however a powerline runs next to the boundary on the North site of the small outlying portion of the site on the other side of the minor road used for access.

- Most of the watercourses on site feed into the Back burn that runs through the valley along the western side of the site and on into Clauchrie burn. Clauchrie burn feeds directly into the River Nith which flows into the Solway which has SSSI designation. The rest of the watercourses drain into the Pennyland Burn on the East of the site.

- Clauchrie burn is also part of a network of watercourses that are important for salmon spawning

- There are no formal recreational facilities other than a core path that runs through the forest however the forest is used by members of the public and the local communities for activities such as walking and biking.

- There is an interest in Clauchrie from local community groups and councils.
2. Key Drivers for design and draft management objectives

Draft Primary Management Objectives

Timber

Clauchrie is a relatively small forest block however it is still of importance in helping to maintain the Districts Net area of productive forest. Sitka spruce is growing well on site with high yield classes and good stocking density. However alternative conifer species such as Norway spruce, Western red cedar, Noble fir, Scots pine and Douglas fir could also add the overall productivity of the forest, as well as contributing to biodiversity, and as such the area of SS will be reduced and the area of alternative conifer species will be increased. There is also scope for areas of productive broadleaves to be managed/created with the intention of providing woodfuel/non-timber products for local sale.

Climate change

Plantation forestry has the ability to lock up carbon dioxide in both its stands and in its products which aids in the mitigation of climate change. However it is also important to increase the resistance of our forests to the impacts of climate change. Creating woodlands with a wider variety of species and age structures will not only achieve this but will also increase the resilience of the forest against pests and diseases.

Community Development

The community has shown an interest in the woodland. During the development of this plan FCS will liaise with any community interest groups to help them achieve their aspirations where compatible with other management objectives.

Biodiversity

The levels of biodiversity in Clauchrie will be heightened by increasing the variety of tree species with a wider range of broadleaves and alternative conifer species as well as restructuring the woodland to give a more diverse range of age classes. The use of LISS/CCF/LTR will allow for less impact on the landscape and the creation of new NW and riparian zones will create networks between existing permanent habitats. Plans will be drawn for the long term restoration of areas designated as ASNW. However a solution to the conflict between planting large seeded native species and red squirrel conservation will need to be drawn.
Draft Secondary Management Objectives

Environment

With the matrix of watercourses on site that feed into the sensitive catchment of the Solway Firth and burns with Salmonid interest, good water quality is of the upmost importance. The steep slopes and wet soils are also influential in terms of run-off from the site which is where alternative silvicultural systems may be of benefit. Therefore to protect water and soil quality all plans will follow best practices laid out by relevant guidelines such as Forestry and Water Guidelines.

Business Development

The management of the woodland for timber and non-timber products creates business development locally. In Clauchrie the main objective is to create opportunities for employment and working contracts within the forest industry and production of firewood/biomass.

Access and Health

The few recreation and informal access facilities in Clauchrie will be managed to be welcoming to public users. Management around the core path that runs through the site will be considered with the objectives of creating views and diversity around the core path. It is intended to allow recreational activity to remain at a low informal level.
3. Potential tree species and structure.

<table>
<thead>
<tr>
<th>Tree Species</th>
<th>Current Forest Species %</th>
<th>Potential future Forest %</th>
<th>Reason for proposed change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Conifer</td>
<td>20</td>
<td>Around 35%</td>
<td>Alternatives to Spruce will bring multiple benefits to the forest. Tree species of Scots Pine and Fir must be included in the plan. These must only be included where they are deemed suitable in terms of ESC and future climate predictions. These species will be focussed on the best site conditions surrounding the watercourses in the sheltered areas of the forest except for Scots pine which prefers the free draining poorer soils. The diversity of these tree species will help strengthen the biodiversity of the habitat networks and increase the resistance of the forest as a whole to climatic changes whilst at the same time, delivering timber objectives.</td>
</tr>
<tr>
<td>Norway Spruce</td>
<td>1</td>
<td>Around 15%</td>
<td>Very useful species to deliver timber, biodiversity and forest resilience to climate change. This species has the potential to grow well on a large majority of the site, however, its growth potential will be limited in places by soil moisture and wind and should avoid exposed sites of DAMS &gt;17. Establishing NS will be an important factor in increasing diversity in what is currently a SS dominated forest.</td>
</tr>
<tr>
<td>Sitka Spruce</td>
<td>58</td>
<td>Around 25%</td>
<td>Maintain a lower percentage of SS than currently for timber and carbon sequestration as part of climate change objectives. This species will be chosen only when there is no alternative species that will deliver the timber management objectives on these sites where the climate and the soils are more challenging</td>
</tr>
<tr>
<td>Broadleaves</td>
<td>10</td>
<td>Around 15%</td>
<td>Focus of broadleaves is in the riparian areas to strengthen the riparian networks, link permanent habitats and comply with the UKFS. Landscape ecology is important and robust links and networks to neighbouring land will be designed. Species will include Birch, Rowan, Willow, Alder, Aspen and Hawthorn. Around 50% of the broadleaf areas will be designated as productive broadleaves. These stands will be on the most sheltered and well drained sites within the forest</td>
</tr>
<tr>
<td>Open</td>
<td>11</td>
<td>Around 10%</td>
<td>Main areas of open space are in and around the riparian zones. This will strengthen the habitat networks through providing light and access for birds and animals. This area will be made up of open space around roads, paths, watercourses and within the broadleaved areas.</td>
</tr>
</tbody>
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4. Glossary

AWS – Ancient Woodland Site
LTR – Long Term Retention
CCF – Continuous Cover Forestry
LISS – Low Impact Silvicultural Systems
PAWS – Plantation on Ancient Woodland Sites
NW – Native Woodland
AC – Alternative Conifers (alternative to Sitka spruce)
LEPO – Long Established of Plantation Origin

ASNW – Ancient Semi-natural Woodland
MB – Mixed Native Broadleaves
PB – Productive Broadleaves
ESC – Ecological Site Classification
UKFS – UK Forest Standard
FCS – Forestry Commission Scotland