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Stirling and Clackmannanshire Forestry and Woodland Strategy

Habitats Regulations Appraisal

HRA Screening Report
Prepared by LUC
January 2013

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1 Introduction

Introduction

1.1 The Stirling and Clackmannanshire Forestry and Woodland Strategy (SCFWS, herein referred to as the Strategy) is being developed by Stirling and Clackmannanshire Councils in partnership with the Forestry Commission Scotland and the Central Scotland Forest Trust.

1.2 The Habitats Regulations Appraisal Process must be applied to the Strategy, as advised by SNH, following consultation on the Strategic Environmental Assessment. The Habitats Regulations Appraisal (HRA) process is required to enable the competent authority to ascertain whether there would be adverse effects on the integrity of Natura sites (Special Areas for Conservation (SACs) and Special Protection Areas (SPAs)) or otherwise.

1.3 This is a Screening Report and looks to assess if any 'likely significant effects' on Natura sites will arise as a result of the proposals within the Strategy. In the event that significant effects are identified, there will be a requirement to undertake an appropriate assessment. The term 'appropriate assessment' (AA) refers to the assessment of the potential adverse effects of a proposed Strategy on one or more European sites (Natura sites). AA is required for strategies which, alone or in combination with other plans or projects, are likely to have a significant effect on a European site. The competent authority should be able to ascertain whether the Strategy would adversely affect the integrity of any international site or otherwise. Where a likely significant effect has been identified, the appropriate assessment looks at the implications of the strategy for the sites in view of their 'conservation objectives' which are crucial to the assessment process.

1.4 Where uncertainty or doubt remains, an adverse effect should be assumed, meaning that the strategy cannot be granted consent by the competent authority.

1.5 The content of this report has been informed by Scottish Government Planning Circular 1 2009 Development Planning: Appendix 1 The Habitats Regulations, and David Tyldesley and Associates (2012) Habitats Regulations Appraisal of Plans Guidance for Plan-making bodies in Scotland, Version 2.

Scope and Report Structure

1.6 The HRA process is based on a number of established steps as detailed in *Habitats Regulations Appraisal of Plans Guidance for Plan-making bodies in Scotland, Version 2 (2012)*. An overview of the process is provided in Appendix 1. This report covers Stages 1 to 6 of the guidance, concluding with mitigation recommendations to apply to the Strategy. Within this report the following tasks have been undertaken:

- Identification of all aspects of the Strategy which would not be likely to have a significant effect on a European site, either alone or in combination with other aspects of the same plan or other plans or projects, so that they can be eliminated from further consideration; and
- Identification of those aspects of the Strategy where it is not possible to rule out the risk of significant effects on a European site, either alone or in combination with other plans or projects. This provides a clear scope for the parts of the plan that will require appropriate assessment.

1.7 Through these tasks the following has been undertaken:

- Screening out general policy statements;

- Screening out projects referred to but not proposed by the plan;
- Screening out policies or proposals with no ecological pathway to Natura sites;
- Evaluation of the scale of impact (likely significant effect) of policies on Natura sites;
- In-combination assessment of effects.
-

1.8 The report is structured as follows:

- **Section 2:** Methodology
- **Section 3:** Baseline
- **Section 4:** Screening of Policies
- **Section 5:** Screening of Woodland Expansion maps
- **Section 6:** Recommendations

The Strategy

1.9 The SCFWS is intended as a strategic management tool, prepared to help inform the location, design and management of woodlands in Stirling and Clackmannanshire. The SCFWS provides a policy and spatial framework to maximise the contribution of woodland and forestry to the people, environment and economy of the region. The SCFWS will also help to target grant support for forestry projects and guide the preparation of forest plans.

1.10 Stirling and Clackmannanshire Councils will have regard to the SCFWS when preparing their Local Development Plans, providing a consistent approach to woodland creation and management across the region.

1.11 The Strategy will:

- Guide and support local authority policy;
- Form the basis for Supplementary Planning Guidance for the Stirling and Clackmannan Development Plans;
- Inform local authority development management decisions that include proposals for woodland removal or creation;
- Guide development of Regional Priorities for the Scotland Rural Development Programme (SRDP) and the planning authority's view on planting proposals and applications for grant support;
- Inform and guide screening and scoping of proposals that fall within the scope of the Environmental Impact Assessment (Forestry) (Scotland) regulations 1999;
- Assist with the development and approval of Forest District Strategic Plans, long term Forest Design and Management Plans).

1.12 The Strategy is structured by seven themes, with supporting objectives and identified outcomes actions under each of these. The themes and supporting objectives have been assessed through the Habitats Regulations Appraisal screening process.

Strategic Themes, Aims, and Objectives of the Stirling and Clackmannanshire Forestry & Woodland Strategy

1.13 The Strategy is divided into the following themes and objectives:

- **Climate Change** - Help Stirling & Clackmannanshire reduce the impact of climate change and better equip the counties to be able to adapt to their changing climates:
  - To identify areas for new woodland creation/existing woodland restoration;

- To highlight areas for climate change adaptation, particularly those which will contribute to sustainable flood management;
- To support the development of biomass for heating;
- To promote the benefits of carbon sequestration through the Woodland Carbon Code; and
- To advocate forestry and woodland management practices which reduce carbon loss from soils.

- **Timber -** Maximise the benefits of Stirling & Clackmannanshire's increasing and sustainable timber resource:

  - To encourage continued investment in the local timber processing capacity;
  - To promote the use of timber as a renewable, versatile raw material; and
  - To encourage the development of the hardwood timber sector.

- **Business Development -** Support business development and strengthen the forest industry and its contribution to local economic growth and employment:

  - To support rural diversification and business development opportunities;
  - To promote Stirling & Clackmannanshire as a destination for tourists and visitors; and
  - To facilitate opportunities for acquiring new skills and experience.

- **Community Development** - Improve the quality of life and well-being of local residents and visitors to Stirling & Clackmannanshire by supporting community development and encourage an increased community involvement in forestry and woodland initiatives:

  - To develop opportunities for expanding the existing woodland resource in and around the towns and villages in Stirling & Clackmannanshire;
  - To promote woodlands as community-owned or managed assets;
  - To facilitate the development of social enterprise networks and capacity building initiatives; and
  - To identify opportunities for delivering the Curriculum for Excellence and lifelong learning through Forest Schools and other forest and woodland-based education.

- **Access and Health** - Encourage responsible access to and enjoyment of forests and woodlands across Stirling & Clackmannanshire and help improve physical and mental health of residents:

  - To highlight opportunities for expanding sustainable recreational facilities in the Stirling & Clackmannanshire for both formal and informal recreation;
  - To support wellbeing initiatives such as Braveheart, Branching Out and Green Gym; and
  - To promote natural play and active travel through Forest Schools and other forest education initiatives.

- **Environmental Quality** - Protect the environmental quality of Stirling & Clackmannanshire's natural resources, enhance the landscape and make the most of its unique cultural heritage:

  - To actively promote Stirling & Clackmannanshire's rich cultural heritage;
  - To contribute to the management and enhancement of Stirling & Clackmannanshire's historic environment; and
  - To promote responsible public access to, and interpretation of, all suitable assets (e.g. archaeology, historic landscapes and buildings).

- **Biodiversity** - Conserve and enhance the region's biodiversity and increase an awareness and enjoyment of the environment:

  - To promote the conservation of key sites and priority habitats;
  - To consolidate and expand functional connectivity through habitat networks in the wider landscape; and
  - Highlighting specific woodland types to assist with the protection of key species (e.g. red squirrel and black grouse).

2 Methodology

2.1 This report works through the pre-screening steps and the screening steps of the HRA process (as detailed in Appendix 1).

2.2 The following Pre Screening steps have been undertaken:

- Identification of Natura sites;
- Identification of the qualifying interests and conservation objectives of the Natura sites;
- Identification of potential impacts on the qualifying interests and conservation objectives resulting from forestry and woodland activities (e.g. habitat loss, hydrological impacts, disturbance from recreation).

Identification of sites

2.3 A 20km radius around the Strategy Study Area was taken as an initial appropriate search area. 20km is taken as the search area based on SNH guidance for assessing connectivity with SPAs[1]. This study area was reviewed in light of the likely nature of impacts from woodland and forestry planting, which considered the impacts would occur at the location of planting or within the area immediately around the planting, or where adjacent to watercourses, impacts could arise downstream. The search for Natura sites therefore considered all sites within with Study Area of the Strategy and any sites located along watercourses flowing from the Study Area, to a distance of 20km downstream.

Identification of sensitivities

2.4 JNCC data sheets[2] have been reviewed to identify existing pressures on the Natura sites and the sensitivities based on their qualifying features. Based on professional judgement and data sheets a list of standard sensitivities has been produced:

- Water quality/ quantity;
- Extent of habitat
- Disturbance to roosting or foraging sites;
- Extent of foraging areas
- Woodland encroachment (growth of trees as a result of seed dispersal)
- Extent of riverine habitat (i.e. suitability for spawning)

Identification of impacts

2.5 The impacts of forestry activity on Natura sites will vary from site to site depending on the existing pressures which sites are under.

2.6 Potential impacts on the Natura sites have been identified by an ecologist, following a review of the sites qualifying features and conservation objectives, based on typical forestry and woodland operations. Impacts may occur over large distances, particularly in relation to hydrological impacts. We have used GIS information on river catchments to inform the identification of associations between areas which may be subject to woodland and forestry activity and hydrological impacts on Natura sites.

[1] http://www.snh.gov.uk/docs/A675474.pdf - SNH Guidance on Assessing Connectivity with SPA March 2012
[2] http://jncc.defra.gov.uk/page-4

Screening steps

2.7 The following Screening steps have been undertaken:

- Screen out general policy statements;
- Screen out projects referred to but not proposed by the plan;
- Screen out policies or proposals with no ecological pathway to Natura sites;
- Evaluate the scale of impact of policies on Natura sites;
- Undertake in-combination assessment of minor effects of policies ;
- Identify recommendations for mitigation measures.

2.8 When evaluating the scale of impact a judgement of likely significant effect is made in relation to the features for which the European site is designated and the sites conservation objectives. A significant effect is taken as any effect that may reasonably be predicted as a consequence of the Strategy that may affect the conservation objectives of the features for which the site was designated, but excluding trivial or inconsequential effects. An impact is determines to be significant when it's likely to affect the integrity of the designated site. The integrity of such a site is defined as '…the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified.'3.

2.9 The assessment of likely significant effects is largely based on the conservation objectives of the European site. If any plan or project causes the cited interest features of a European site to fall into unfavourable condition they can be considered to have had a significant adverse effect upon the Natura site. Plans or projects can adversely affect a Nature site by:

- Causing delays in progress towards achieving the conservation objectives of the site;
- Interrupting progress towards achieving the conservation objectives of the site;
- Disrupting those factors that help to maintain the favourable conditions of the site; and
- Interfering with the balance, distribution and density of key species that are the indicators of the favourable condition of the site.

2.10 As the Strategy is a high level document and does not provide a detailed account of any planting that may arise from the Strategy, professional judgement has been used to determine likely significance. Where it cannot be determined with certainty that the Strategy will not lead to a significant effect the precautionary principle is applied.

[3] Part I, Section B, Paragraph 20 of *ODPM Circular 06/2005* accompanying *Planning Policy Statement 9: Biodiversity and Geological Conservation*

3 Baseline

Designated Sites

3.1 Table 3.1 sets out the Natura sites within Stirling and Clackmannanshire and within the search area buffer as detailed in 2.3 above. For each designated site identified, details are provided on their notified features, conservation objectives and sensitivities to woodland and forestry activities. Information has been sourced from SNH sitelink website[4] and from the JNCC website[5].

Identification of Impacts

3.2 Forestry activities such as planting and ditching may alter the catchment hydrology, increase sediment erosion and transportation, and alter stream water chemistry. These impacts may affect the abundance and diversity of aquatic biota downstream of the afforested area[6].

3.3 General issues identified include the susceptibility of habitats (particularly bog) to regeneration from forestry plantations which act as a seed source and potential effects on ground nesting birds from the increased risk of predation (woodland adjacent to habitats used for ground nesting birds may provide cover for prey.)

3.4 Other sensitivities relating to access or forestry activity disturbance to bird or mammal species also need to be considered in relation to the distance from which impacts may occur.

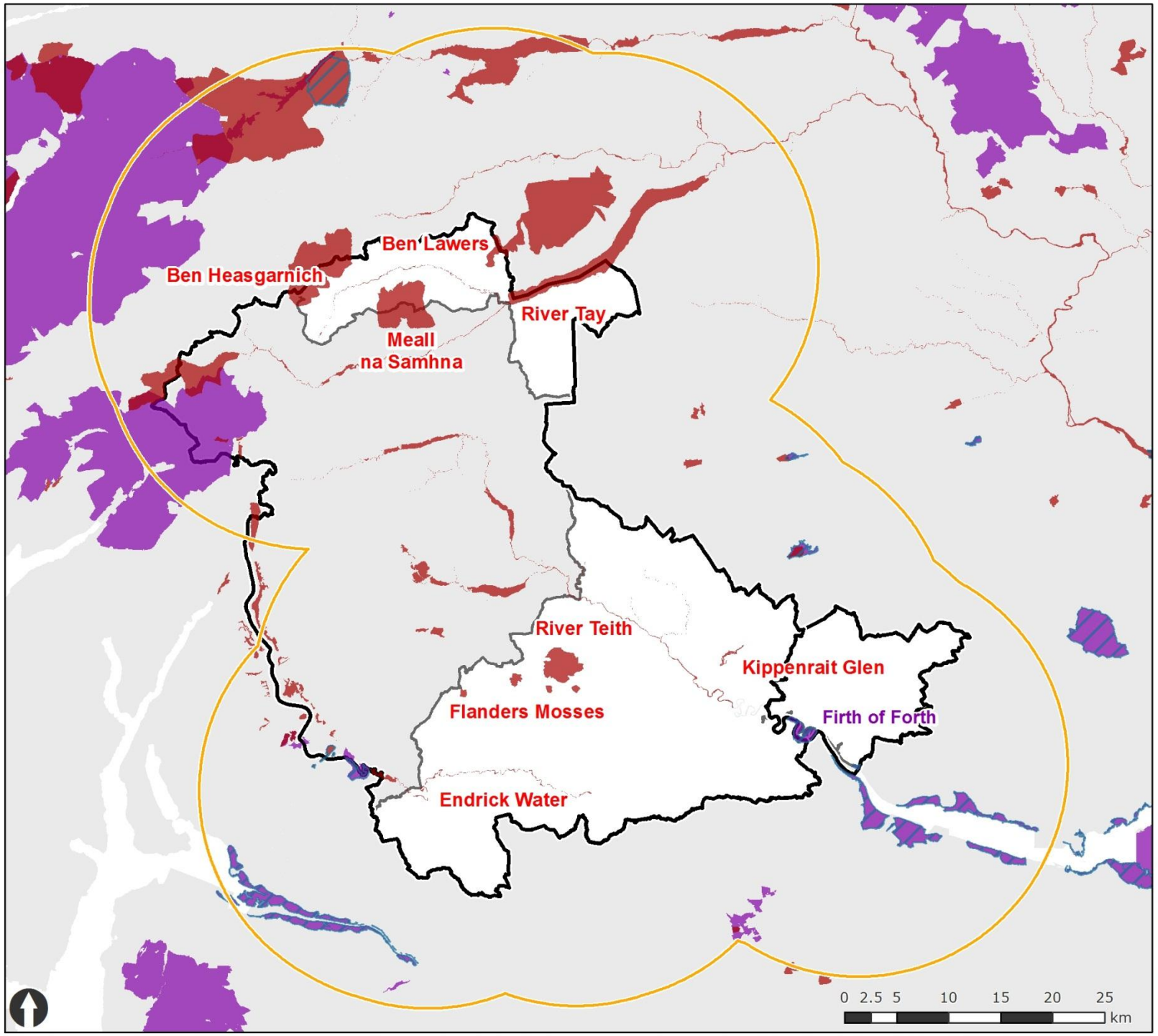
3.5 Stirling and Clackmannanshire Natura sites may potentially be effected by the Strategy in the following ways:

- Hydrological impacts (water quantity and quality, including pH and sediment);
- Habitat loss (loss of qualifying habitat or habitat supporting qualifying species);
- Habitat encroachment (through dispersal of seeds from forestry and woodland sites)
- Recreational access disturbance (impacts on bird and mammal species).
- Forestry operations disturbance (impacts on bird and mammal species).

[4] http://gateway.snh.gov.uk/sitelink/index.jsp

[5] http://jncc.defra.gov.uk/page-4

[6] http://www.snh.org.uk/publications/on-line/advisorynotes/19/19.htm - Rivers and their catchments: potentially damaging physical impacts of commercial forestry



Stirling & Clackmannanshire

Forestry Woodland Strategy
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Legend

- Study area
- Local Authority Boundary
- Ramsar wetlands
- Special Area of Conservation
- Special Protection Area
- Buffer - 20km

TITLE

Figure 2
Natural heritage designations

LUC

Table 3.1: Natura 2000 designations in Stirling & Clackmannanshire, Conservation Objectives and sensitivities of qualifying interests to forestry and woodland planting

Designation	Name and Area	Qualifying Interest	Condition	Information from JNCC data sheets on site sensitivities
Special Protection Area	Firth of Forth – Figure 3.1	Over winter the area supports 95000 waterfowl, including Pink-foot geese and lapwing.	Favourable	While the major factor potentially affecting the site is coastal industrial development, such development is subject to detailed planning control, ensuring that the site is not significantly affected. Oil and other industrial developments concentrated along the shore line do pose a threat, however rigorous emergency contingency plans are in place to minimise the impact of any incident. Localised tipping is an ongoing problem but consists mainly of inert building waste and is mostly controlled by the relevant licensing authority. The potential for rising sea levels to remove important habitats is recognised, and a number of coastal realignment schemes (planned retreat) are planned for these areas which will go some way to offsetting any habitat loss.
Special Area of Conservation	Ben Heasgarnich – Figure 3.2	Upland calcareous grassland; base-rich fen; montane vegetation	Generally unfavourable	A Management Plan exists for the whole site, and considers ways of encouraging the spread of the sub-arctic willow scrub and eutrophic tall herb habitats. A Management Agreement covers half of the site with the aim of maintaining and enhancing nature conservation interests, including limitations on sheep grazing pressure. A willow scrub restoration and vegetation monitoring programme is being established on another part of the site to help maintain its key features and to determine the impact of grazing.
	Ben Lawers – Figure 3.3	Blanket bog; upland calcareous grassland; dry heath; base-rich fen; montane habitats; open water	Generally unfavourable (open water, high altitude flushes and rock vegetation communities favourable)	The grassland and heath habitats require grazing to maintain their diversity. The sub-arctic scrub and tall herb communities are vulnerable to, and restricted by, sheep and deer grazing. Grazing and deer management over most of the SAC is the responsibility of private farms. An EU LIFE project looking at grazing management was recently completed. A major project to promote sub-arctic willow scrub and tall herb communities is underway. A long-term programme to gain control and management of grazing on the site by the National Trust for Scotland, with support from Scottish Natural Heritage, is in place. Physical erosion caused by walkers and the collection of plants is managed by the NTS Ranger Service with support from SNH.
	Endrick Water- Figure 3.4	Atlantic salmon; brook lamprey; river lamprey	Salmon – unfavourable, recovering Lamprey - favourable	Point and diffuse sources of pollution are not thought to be significant given the levels of dilution, and SEPA have increased their level of monitoring and surveillance of the river.
	Flanders Mosses – Figure 3.5	Degraded raised bog; Active raised bog	Degraded bog – unfavourable, recovering; Active – unfavourable, declining	There are few significant threats to the qualifying interests at present. Part of the site is a National Nature Reserve managed for its natural heritage interest. In this area a Management Agreement is in place which allows for positive management via a twin programme of ditch-blocking and scrub removal, thus redressing damage caused by drainage in the past. This approach is also being pursued over the remainder of the site, and under the SNH National Nature Reserve Review it is intended to increase the area of the site within the NNR.
	Kippenrait Glen- Figure 3.6	Mixed woodland	Unfavourable	There is a Woodland Grant Scheme in operation over a part of the woodland that includes removal of sycamore and Rhododendron in some areas. The impacts of roe deer on the site will be assessed. There are plans to obtain LIFE funding to tackle management issues and to monitor the impact of the landslides on the woodland ecology.
	Meall na Samhna- Figure 3.7	Calcareous grassland; montane habitats; willow scrub	Generally unfavourable (rock vegetation favourable)	The site is subject to extensive grazing by sheep
	River Tay – Figure 3.8	River lamprey; brook lamprey; sea lamprey; Atlantic salmon; otter; open water	All favourable	There are no known current land or river management practices that are having an adverse impact on the integrity of the site.
	River Teith – Figure 3.9	River lamprey; brook lamprey; sea lamprey; Atlantic salmon	Favourable (salmon – unfavourable recovering)	There are few significant threats to the qualifying interests at present. Water quality is generally high, with modern forestry practices and guidance minimising the disturbance to the river system in the heavily afforested upper catchment of the site.
Ramsar Wetland	Firth of Forth – Figure 3.1	Important for a number of wintering waders and waterfowl.	As detailed for Firth of Forth SPA	As detailed for Firth of Forth SPA

4 Screening policies and proposals of the SCFWS

4.1 This section of the report lists the themes and objectives of the Stirling and Clackmannanshire Forest and Woodland Strategy, and identifies if there are likely significant effects, low level residual effects or no effect from each action on the Natura sites listed in the Baseline chapter. The column headed 'spatial reference' identifies if the action includes a spatial reference, and if this is specific enough to allow effects on the Natura sites to be identified, or to highlight if the action is too general.

4.2 A key point to the HRA is the high level nature of the actions, and the lack of spatial specificity to objectives. However the Strategy does set out areas of potential woodland expansion, as shown on Figure 1 in Appendix 2, which shows identified broad areas of land for future woodland expansion, based on the categories **Preferred, Potential and Sensitive**. These areas are discussed in Section 5 below.

Table 4.1 Stage 1: List policies and proposals of AAFWS, set out results of screening

Theme	Objectives Actions	Note of any spatial reference set out in action	Potential Effects on Natura sites: Likely significant effects, no likely significant effect, 'de minimis' effect
Climate Change – Help Stirling and Clackmannanshire reduce the impact of climate change and better equip the localities to be able to adapt to changing climate	To identify areas for new woodland creation/ existing woodland restoration	See Section 5 below and Maps in Appendix 1	General locations have been identified in the Strategy as preferred and potential areas for woodland planting and assessment of these locations in reference to Natura sites is provided in Section 5.
	To highlight areas for climate change adaption, particularly those which will contribute to sustainable flood management	-	No likely significant negative effect, will not lead to development or other change. This policy has potential to have a positive long term impact.
	To support the development of biomass for heating	-	The proposal is general and no potential location for biomass are identified, however any areas are likely to be with the preferred and potential woodland areas identified and discussed with reference to Natura sites in Section 5.
	To promote the benefits of carbon sequestration through the woodland carbon code	-	No likely significant negative effect, will not lead to development or other change. This policy has potential to have a positive long term effect.
	To advocate forestry and woodland management practices which reduce carbon loss from soils	-	No likely significant effect, will not lead to development or other change.
Timber: Maximise the benefits of Stirling and Clackmannanshire's increasing and sustainable timber resource	To encourage continued investment in the local timber processing capacity	-	No likely significant effect, effects on any particular European site cannot be identified, because the proposal is too general and the potential location of infrastructure is not identified.
	To promote the use of timber as a renewable, versatile raw	-	No likely significant effect, will not lead to development or other

Theme	Objectives Actions	Note of any spatial reference set out in action	Potential Effects on Natura sites: Likely significant effects, no likely significant effect, 'de minimis' effect
	material		change.
	To encourage the development of the hardwood timber sector	-	No likely significant effect, will not lead to development or other change.
Business Development: Support business development and strengthen the forest industry and its contribution to local economic growth and employment	To support rural diversification and business development opportunities	-	No likely significant effect, any particular effects on any European site cannot be identified because the proposal is too general.
	To promote Stirling & Clackmannanshire as a destination for tourists and visitors	-	No likely significant effect, any particular effects on any European site cannot be identified because the proposal is too general.
	To facilitate opportunities for acquiring new skills and experience	-	No likely significant effect, will not lead to development or other change.
Community Development: Improve the quality of life and well-being of local residents and visitors to Stirling and Clackmannanshire by supporting community development and encourage an increased community involvement in forestry and woodland initiatives	To develop opportunities for expanding the existing woodland resource in and around the towns and villages in Stirling & Clackmannanshire	Woodlands close to settlements	General locations have been identified in the Strategy as preferred and potential areas for woodland planting and assessment of these locations in reference to Natura sites is provided in Section 5.
	To promote woodlands as community-owned or managed asset	-	No likely significant effect, any particular effects on any European site cannot be identified because the proposal is too general.
	To facilitate the development of social enterprise networks and capacity building initiatives	-	No likely significant effect, any particular effects on any European site cannot be identified because the proposal is too general.
	To identify opportunities for delivering the Curriculum for Excellence and lifelong learning through Forest Schools and other forest and woodland-based education	Woodlands close to schools	No likely significant effect, any particular effects on any European site cannot be identified because the proposal is too general.
Access and Health: Encourage responsible access to and enjoyment of forests and woodlands across Stirling and Clackmannanshire and help improve physical and mental health of residents	To highlight opportunities for expanding sustainable recreational facilities in Stirling & Clackmannanshire for both formal and informal recreation	-	No likely significant effect, any particular effects on any European site cannot be identified because the proposal is too general.
	To support wellbeing initiatives such as Braveheart, Branching out and Green Gym		No likely significant effect, will not lead to development or other change.
	To promote natural play and active travel through Forest Schools and other forest education initiatives		No likely significant effect, will not lead to development or other change.
Environmental Quality: Contribute to the enhancement of Stirling and Clackmannanshire's water, soil and air resources, diverse and attractive landscapes and	To actively promote Stirling & Clackmannanshire's rich cultural heritage	-	No likely significant effect, will not lead to development or other change.
	To contribute to the management and enhancement of Stirling & Clackmannanshire's historic		No likely significant effect, will not lead to development or other change.

Theme	Objectives Actions	Note of any spatial reference set out in action	Potential Effects on Natura sites: Likely significant effects, no likely significant effect, 'de minimis' effect
historic environment	environment		
	To promote responsibly public access to, and interpretation of, all suitable assets (e.g. archaeology, historic landscapes and buildings)		No likely significant effect, will not lead to development or other change.
Biodiversity: Conserve and enhance the region's biodiversity and increase awareness and enjoyment of it	To promote the conservation of key sites and priority habitats	-	Positive objective for conservation. Will not have a significant negative effect.
	To consolidate and expand functional connectivity through habitat networks in the wider landscape		Positive objective for conservation. Will not have a significant negative effect.
	Highlighting specific woodland types to assist with the protection of key species (e.g. red squirrel, badgers and black grouse)		Positive objective for conservation. Will not have a significant negative effect.

5 Screening potential for woodland expansion mapping

5.1 The maps provided in the woodland Strategy which show preferred areas to accommodate future expansion of a range of woodland types have been subject to review as part of this screening, as detailed in Table 5.1 below. The Strategy does not provide any details regarding the level or type of woodland that may be developed in these areas; however it does note that native woodland and mixed woodland are the two most appropriates types of woodland expansion for Stirling and Clackmannanshire.

5.2 The maps in Appendix 2 show the locations of preferred and potential areas for woodland planting as identified in the woodland Strategy. These maps also show the locations in relation to the designated sites. A review has been undertaken with respect to each of the designated sites. It is acknowledged that the preferred and potential areas, do not represent areas of definitive planting, but have been identified within the Strategy as areas which are suitable for planting, with respect to current land character types, taking account of sensitivities (e.g. sites designated for ecological or heritage purposes).

5.3 The Strategy states "it should be noted that the classification of "preferred" or "potential" does not automatically mean that any proposal would proceed and references the requirements under the Habitat Regulations to undertake an appropriate assessment where required.

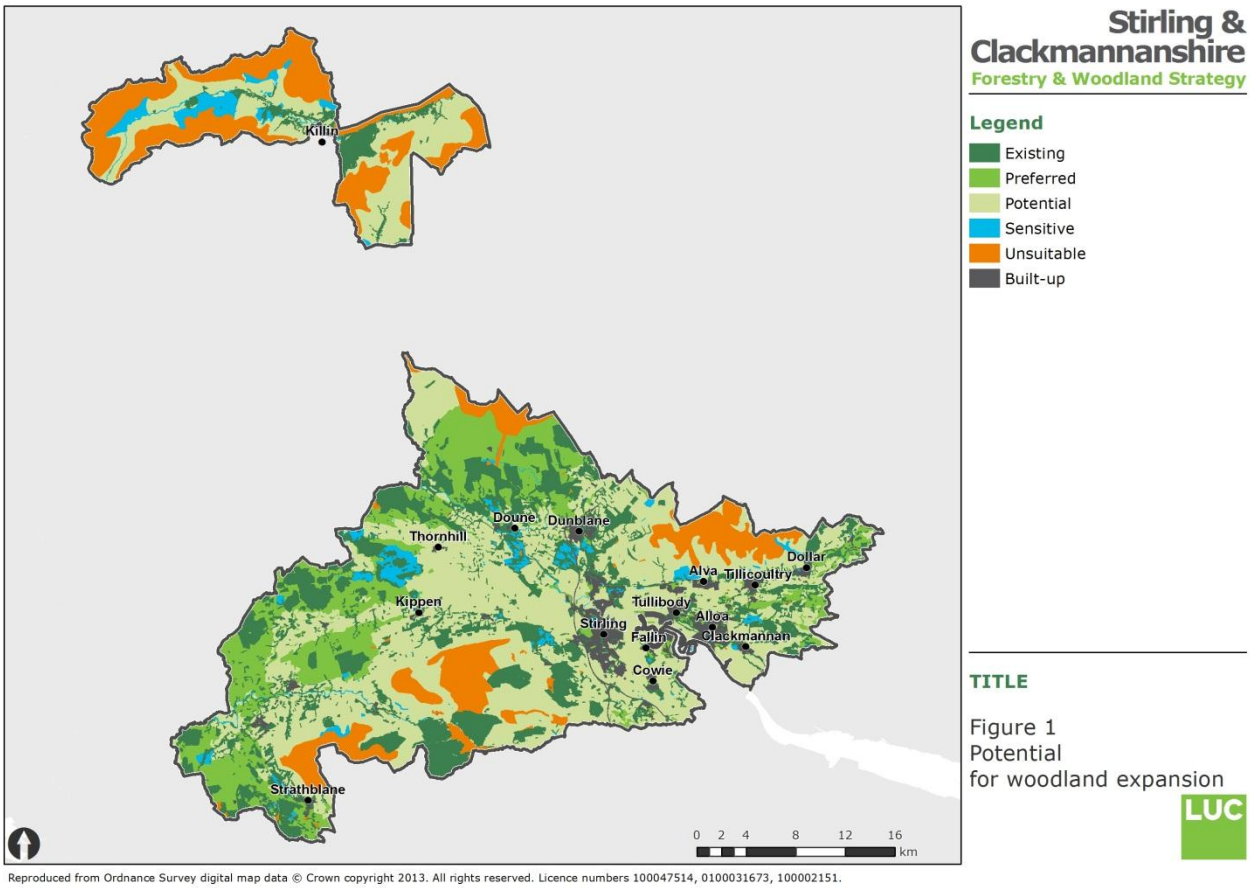


Table 5.1: Assessment of potential effects on the Natura sites based on proposed woodland expansion maps.

Site name and designated	Qualifying Interest	Location of Preferred and Potential Woodland	Potential effects on qualifying interests to forestry and woodland activities	Potential Effects
Firth of Forth SPA, SAC and Ramsar	Over winter the area supports 95000 waterfowl.	An area of preferred woodland is adjacent to the Firth of Forth SPA in its upper reaches	The conservation status of the qualifying features is considered to be closely linked to and dependent on the following factors: • **Water quality** • **Extent of foraging areas** • **Disturbance levels at feeding and roosting sites** Listed below are most likely impacts resulting from woodland and forestry activities that can affect the qualifying interest: • **Water quality - effects of changes in water quality which may in turn affect foraging resources (from invertebrates in sediment)** • **Habitat loss – where foraging grounds are lost (e.g. loss of arable land),** • **Disturbance to roosting or foraging sites from forestry operations**	The area of preferred woodland adjacent to the Firth of Forth is current agricultural land and as such may be used or has the potential to be used in the future as a foraging area for birds associated with the SPA. The loss of this land to woodland may therefore result in the loss of suitable foraging habitat and in turn affect the numbers of pink-foot geese and lapwing using the SPA. **Potential for Likely Significant Effect**
Ben Heasgarnich SAC	Upland calcareous grassland; base-rich fen; montane vegetation	Closest potential woodland location – 625m	The conservation status of the qualifying features is considered to be closely linked to and dependent on the following factors: • **Water quality/quantity.** • **Extent of habitat** • **Woodland encroachment (growth of trees as a result of seed dispersal)** Burns flowing from Ben Heasgarnich represent the upper limites of the catchment and as such no forestry or woodland could occur upstream of this SAC. The site itself is unsuitable for woodland planting. As a high altitude site, any woodland and forestry activities around the site, would be at a lower altitude to the SAC	No impact anticipated due to distance of closest potential planting to the designated site. Potential planting areas are downslope of the designed site and as such there will be no affects to water quality/ quality. **No Likely Significant Effect**

Site name and designated	Qualifying Interest	Location of Preferred and Potential Woodland	Potential effects on qualifying interests to forestry and woodland activities	Potential Effects
			and would have no hydrological connectivity through ground or surface water. The area around the SAC is also unsuitable for woodland or forestry planting, so there is not considered to be any risk from seed dispersal. Given the location of Ben Heasgarnich as an upland site, largely above 400m A.O.D it is considered that there would be no impacts to t	
Ben Lawers SAC	Blanket bog; upland calcareous grassland; dry heath; base-rich fen; montane habitats; open water	Closest potential woodland location – 750m	The conservation status of the qualifying features is considered to be closely linked to and dependent on the following factors: • **Water quality/quantity.** • **Extent of habitat** • **Woodland encroachment (growth of trees as a result of seed dispersal)** Burns flowing from Ben Lawers represent the upper limits of the catchment and as such no forestry or woodland could occur upstream of the SAC. The site itself is unsuitable for woodland planting. As a high altitude site, any woodland and forestry activities around the site, would be at a lower altitude to the SAC and would have no hydrological connectivity through ground or surface water. The area around the SAC is also unsuitable for woodland or forestry planting, so there is not considered to be any risk from seed dispersal. Given the location of Ben Lawers as an upland site, it is considered that there would be no impacts to this site.	No impact anticipated due to distance of closest potential planting to the designated site. Potential planting areas are downslope of the designed site and as such there will be no affects to water quality/ quality. **No Likely Significant Effect**
Endrick Water SAC	Atlantic salmon; brook lamprey; river	Upper catchment within Study Area– preferred woodland locations	The conservation status of the qualifying features is considered to be closely linked to and dependent on the	The Strategy identifies that the only suitable woodland types for woodland expansion are Native Woodland and Mixed

Site name and designated	Qualifying Interest	Location of Preferred and Potential Woodland	Potential effects on qualifying interests to forestry and woodland activities	Potential Effects
	lamprey	adjacent to the watercourse. Lower catchment within Study Area – potential woodland locations adjacent to watercourse.	following factors: • **Water quality/quantity** • **Extent of habitat (i.e. suitability for spawning)** Listed below are most likely impacts resulting from woodland and forestry activities that can affect the qualifying interest: • **Hydrological impacts.** This includes impacts within the downstream catchment/s, if forestry alters the acidity of water (quality) or affects surface water flow (quantity).	Woodlands. Planting woodland along the river corridor as riparian woodland can have a range of benefits, including reducing diffuse pollution and flood risk, moderating water temperature, supporting fish populations. The Strategy does not confirm the nature of woodland planting in these areas and in the absence of detail it is not possible to conclude with certainty if a positive or negative impact would arise. **Potential for Likely Significant Effect**
Flanders Moss SAC	Degraded raised bog; Active raised bog	The majority of the area surrounding Flanders Moss is identified as preferred and potential locations for woodland planting.	The conservation status of the qualifying features is considered to be closely linked to and dependent on the following factors: • **Water quality/quantity.** • **Extent of habitat** • **Woodland encroachment** (growth of trees as a result of seed dispersal) Listed below are most likely impacts resulting from woodland and forestry activities that can affect the qualifying interest: **Hydrological impacts:** Arising through alteration to the acidity of water (quality) or affects surface water flow (quantity). **Habitat encroachment:** As a result of seed dispersal, leading to succession.	Woodland planting around the edge of Flanders Moss could impact the SAC through affecting surface water flow and as a result of habitat encroachment of woodland. Effects on water quality through acidification are unlikely as coniferous plantations are not proposed. **Potential for Likely Significant Effect**

Site name and designated	Qualifying Interest	Location of Preferred and Potential Woodland	Potential effects on qualifying interests to forestry and woodland activities	Potential Effects
Kippenrait Glen SAC	Mixed woodland	The majority of the area surrounding Kippenrait is identified as a potential location. The closeted preferred location is 565m from the site.	The conservation status of the qualifying features is considered to be closely linked to and dependent on the following factors: • **Water quality/quantity** • **Extent of habitat** Listed below are most likely impacts resulting from woodland and forestry activities that can affect the qualifying interest: **Hydrological impacts:** Arising through alteration to the acidity of water (quality) or affects surface water flow (quantity). **Habitat deterioration:** As a result of the spread of non-native species.	The Strategy identifies that the only suitable woodland types for woodland expansion are Native Woodland and Mixed Woodlands. Planting around Kippenrait Glen woodland could enhance the SAC if an appropriate planting mix was used. The Strategy does not confirm the nature of woodland planting in these areas and in the absence of detail it is not possible to conclude with certainty to a positive or negative impact would arise. **Potential for Likely Significant Effect**
Meall na Samhna SAC	Calcareous grassland; montane habitats; willow scrub	Two areas of potential woodland located on the east and west sides of the SAC.	The conservation status of the qualifying features is considered to be closely linked to and dependent on the following factors: • **Extent of habitat** • **Water quality/quantity** • **Woodland encroachment** (growth of trees as a result of seed dispersal) Burns flowing from Meall na Samhna represent the upper limit of the catchment and as such no forestry or woodland could occur upstream of the SAC. The site itself is unsuitable for woodland planting. As a high altitude site, any woodland and forestry activities around the site, would be at a lower altitude to the SAC and no would have no hydrological connectivity through ground or surface water. The area around the SAC is also unsuitable for woodland or forestry planting, so there is not considered to be any risk from seed dispersal.	Potential planting areas are downslope of the designed site and as such there will be no affects to water quality/ quality. No impact anticipated due to distance of closest potential planting to the designated site. **No Likely Significant Effect**

Site name and designated	Qualifying Interest	Location of Preferred and Potential Woodland	Potential effects on qualifying interests to forestry and woodland activities	Potential Effects
			Given the location of Meall na Samhna as an upland site, it is considered that there would be no impacts to this site.	
River Tay SAC	River lamprey; brook lamprey; sea lamprey; Atlantic salmon; otter; open water	Potential locations adjacent to the watercourse.	The conservation status of the qualifying features is considered to be closely linked to and dependent on the following factors: • **Water quality/quantity** • **Extent of foraging areas/ suitable resting sites (otter)** • **Extent of habitat (i.e. suitability for spawning)** • **Disturbance levels at locations with suitable resting sites (otter)** Listed below are most likely impacts resulting from woodland and forestry activities that can affect the qualifying interest: • **Hydrological impacts**. This includes impacts within the downstream catchment/s, if forestry alters the acidity of water (quality) or affects surface water flow (quantity). • **Disturbance levels to resting sites (otter) from forestry operations**	The Strategy identifies that the only suitable woodland types for woodland expansion are Native Woodland and Mixed Woodlands. Planting woodland along the river corridor as riparian woodland can have a range of benefits, including reducing diffuse pollution and flood risk, moderating water temperature, supporting fish populations. Woodland planting along the river corridor would likely enhance the habitat for otters. The Strategy does not confirm the nature of woodland planting in these areas and in the absence of detail it is not possible to conclude with certainty to a positive or negative impact would arise. **Potential for Likely Significant Effect**
River Teith SAC	River lamprey; brook lamprey; sea lamprey; Atlantic salmon	Upper catchment within Study Area– preferred woodland locations adjacent to the watercourse. Lower catchment within Study Area – potential woodland locations adjacent to watercourse.	The conservation status of the qualifying features is considered to be closely linked to and dependent on the following factors: • **Water quality/quantity** • **Extent of habitat (i.e. suitability for spawning)** Listed below are most likely impacts resulting from woodland and forestry activities that can affect the	The Strategy identifies that the only suitable woodland types for woodland expansion are Native Woodland and Mixed Woodlands. Planting woodland along the river corridor as riparian woodland can have a range of benefits, including reducing diffuse pollution and flood risk, moderating water temperature, supporting fish populations. The Strategy does not confirm the nature of woodland planting in these areas and in the absence of detail it is not

Site name and designated	Qualifying Interest	Location of Preferred and Potential Woodland	Potential effects on qualifying interests to forestry and woodland activities	Potential Effects
			qualifying interest: • **Hydrological impacts**. This includes impacts within the downstream catchment/s, if forestry alters the acidity of water (quality) or affects surface water flow (quantity).	possible to conclude with certainty to a positive or negative impact would arise. **Potential for Likely Significant Effect**

6 Conclusions and recommendations

6.1 Based on the assessment, the following additions to the Strategy are recommended to ensure that the SCFWS does not have a significant effect on any of the Natura 200 sites:

- **Flanders Moss SAC**: A 100m buffer zone should be applied around Flanders Moss within which no woodland planting will be under undertaken.
  - Rationale: This recommendation is required to ensure that tree encroachment of Flanders Moss does not occur as a result of woodland spread through seed dispersal.

- **River Tay, River Teith, Endrick Water and Firth of Forth SAC**: Planting may occur adjacent to these watercourses, but must be appropriate and take account of potential water quality issues. It is acknowledged that the Strategy identifies that native woodland and mixed woodland with a significant timber component are the two most appropriate types of woodland expansion. The Strategy should state that within 50m of watercourses only native woodland will be planted, using an appropriate species mix for riverine environments.
  - Rationale: This recommendation is required to prevent adverse impacts to the water quality of these SACs.

- **Firth of Forth SPA**: The area of preferred habitat identified which is adjacent to the Firth of Forth should be reclassified, so that all areas of farmland or natural areas within 100m of the SPA are listed as sensitive.
  - Rationale: This recommendation is required to prevent the loss of suitable foraging habitat that may be used by the qualifying features associated with the SPA.

6.2 If these recommendations are not implemented an appropriate assessment of the SCFWS would be required to fully assess impacts (alone and in-combination) on the following designated sites:

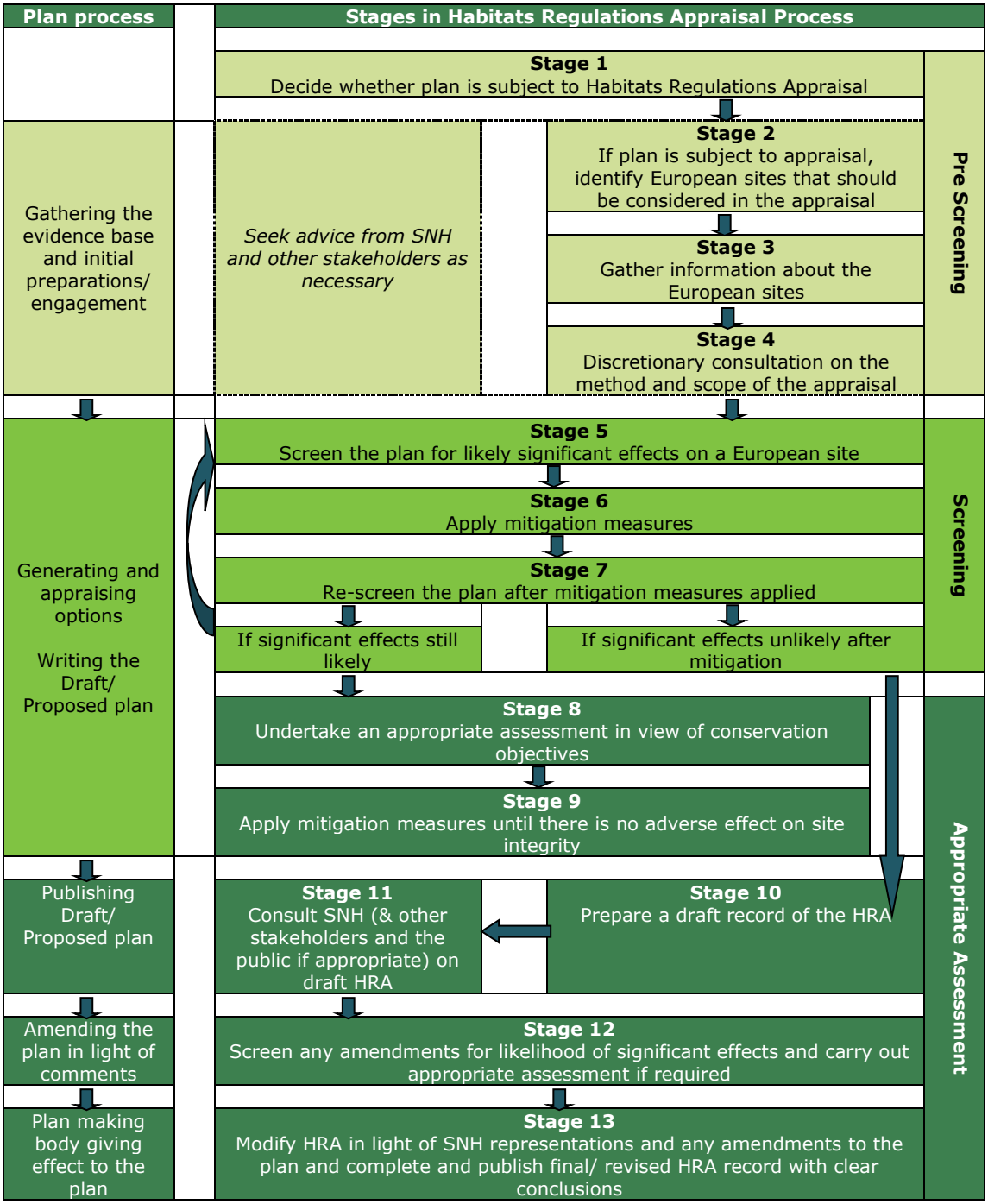
- **Flanders Moss, River Tay, River Teith, Endrick Water, Firth of Forth SAC**

6.3 This HRA screening concludes that the Strategy will not have any significant effects on the following sites, and as no 'de minimis' effects are identified, no in-combination effects need to be assessed:

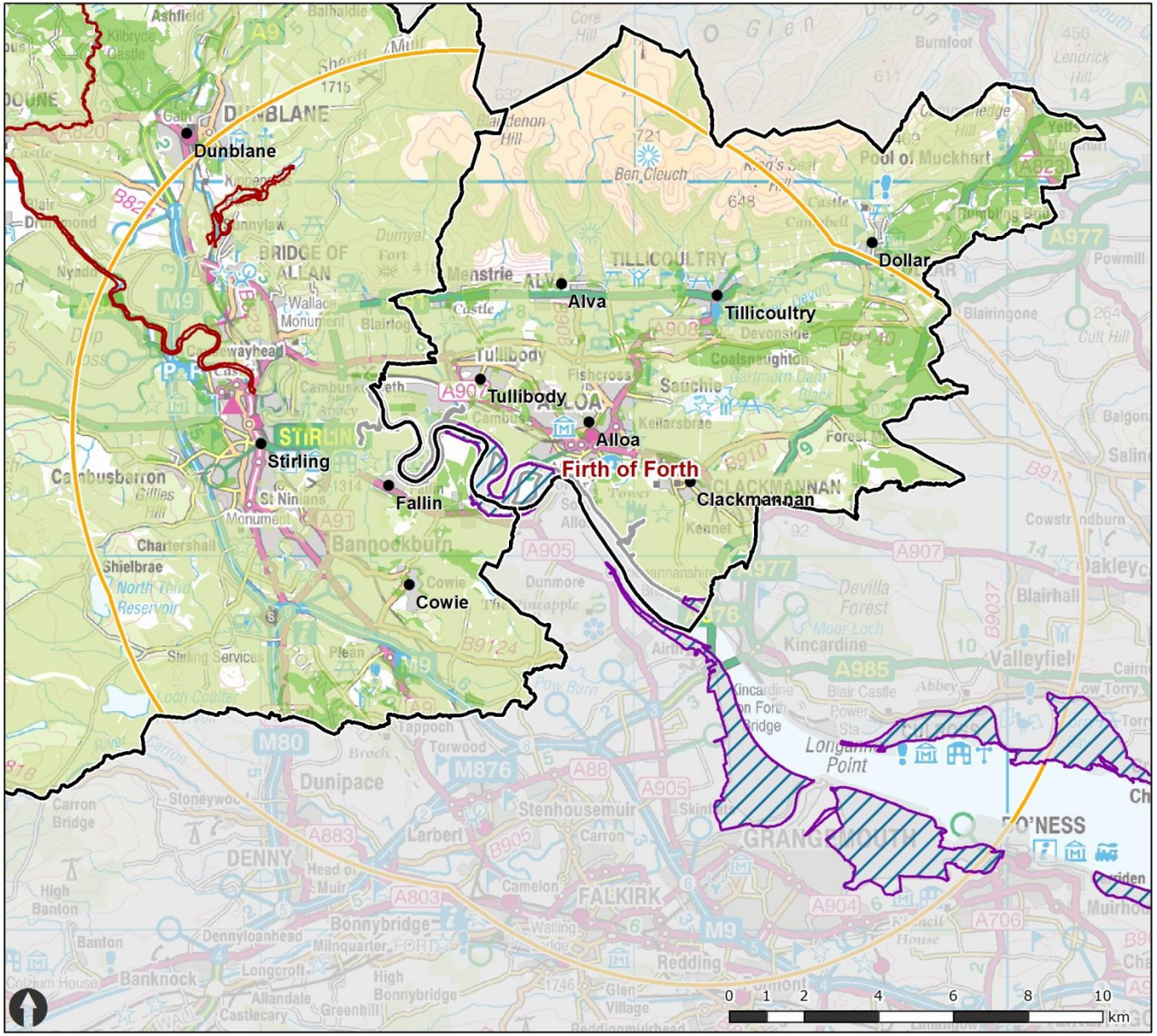
- Ben Lawers, Ben Heasgarnich, Meall na Samhna

Appendix 1
Overview of HRA process

Figure A1.1: Key stages of the Habitats Regulations Appraisal Process for Plans (adapted from David Tyldesley and Associates (2010) *Habitats Regulations Appraisal of Plans Guidance for Plan-making bodies in Scotland)*



Appendix 2
Maps of Natura Sites in Stirling and Clackmannanshire



Stirling & Clackmannanshire

Forestry & Woodland Strategy
Habitats Regulations Appraisal

Legend

- Settlements
- Study area
- Local Authority Boundary
- Special Protection Area
- Ramsar wetlands
- Special Area of Conservation
- Buffer - 10km

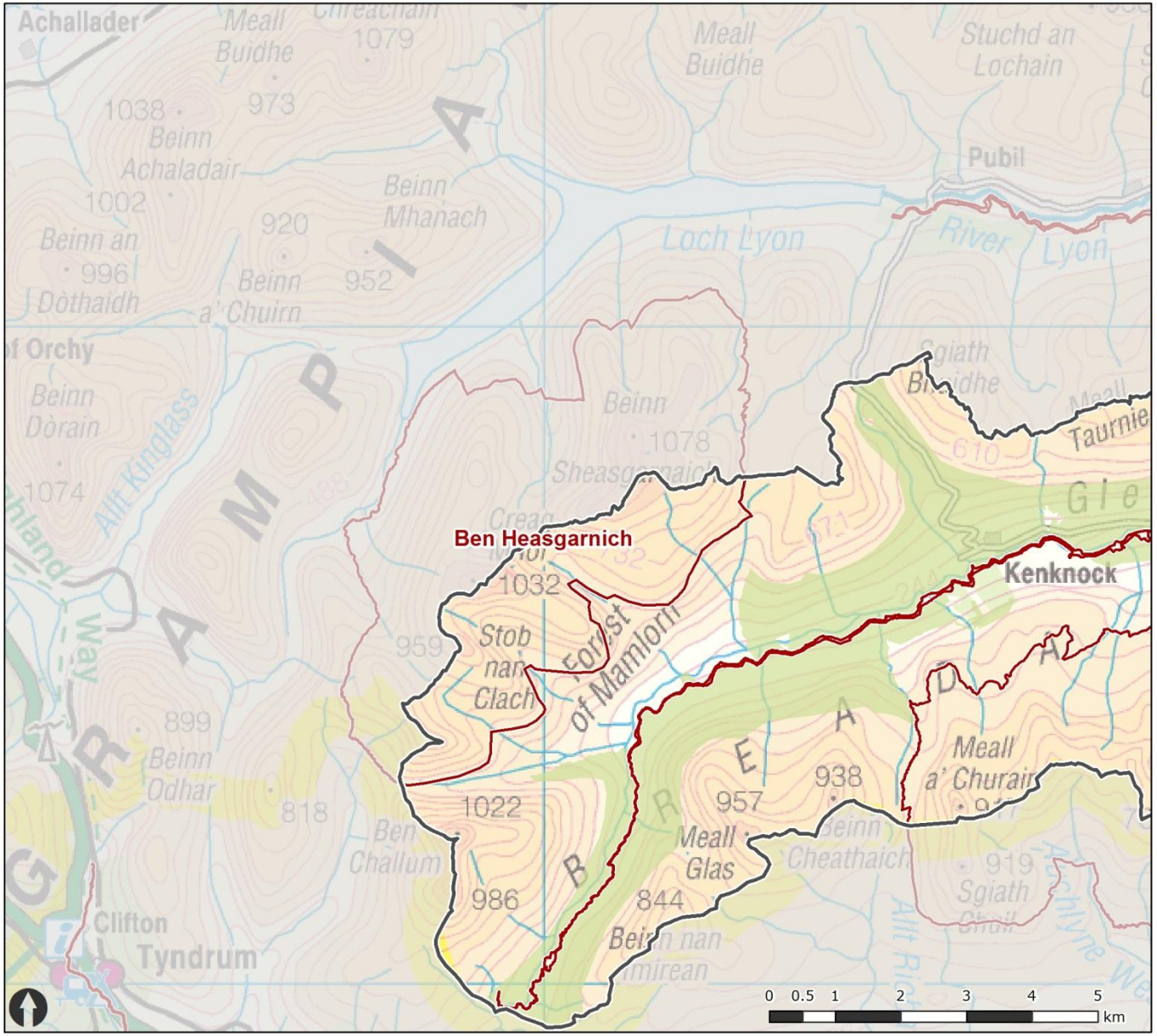
Potential for Woodland Expansion

- Preferred
- Potential

TITLE

Figure 3.1
Designated Site - Firth of Forth

LUC



Stirling & Clackmannanshire
Forestry & Woodland Strategy
Habitats Regulations Appraisal

Legend

- Settlements
- Study area
- Ramsar wetlands
- Special Protection Area
- Special Area of Conservation

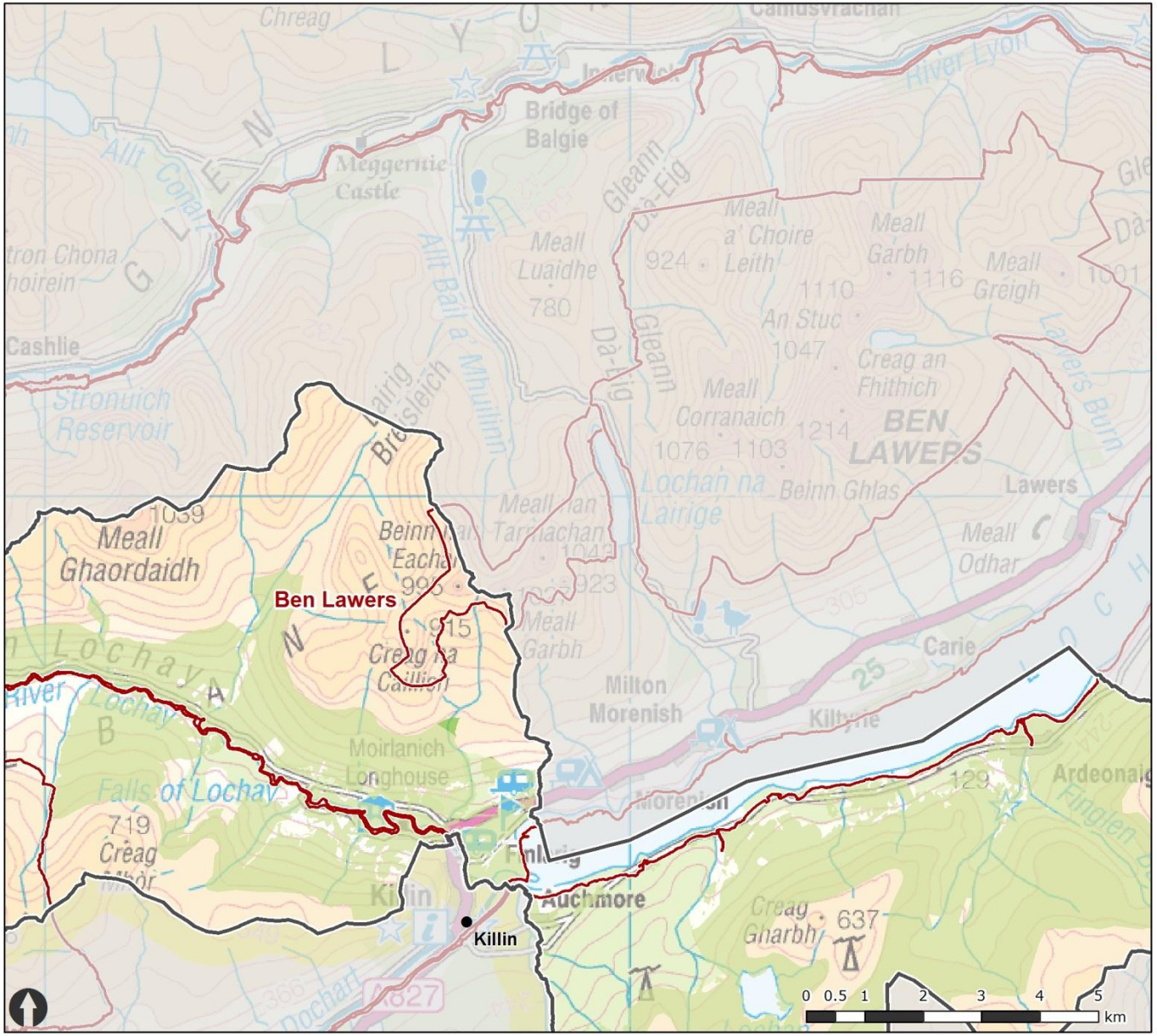
Potential for Woodland Expansion

- Preferred
- Potential

TITLE

Figure 3.2
Designated Site - Ben Heasgarnich

LUC



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Stirling & Clackmannanshire
Forestry & Woodland Strategy
Habitats Regulations Appraisal

Legend

- Settlements
- Study area
- Ramsar wetlands
- Special Protection Area
- Special Area of Conservation

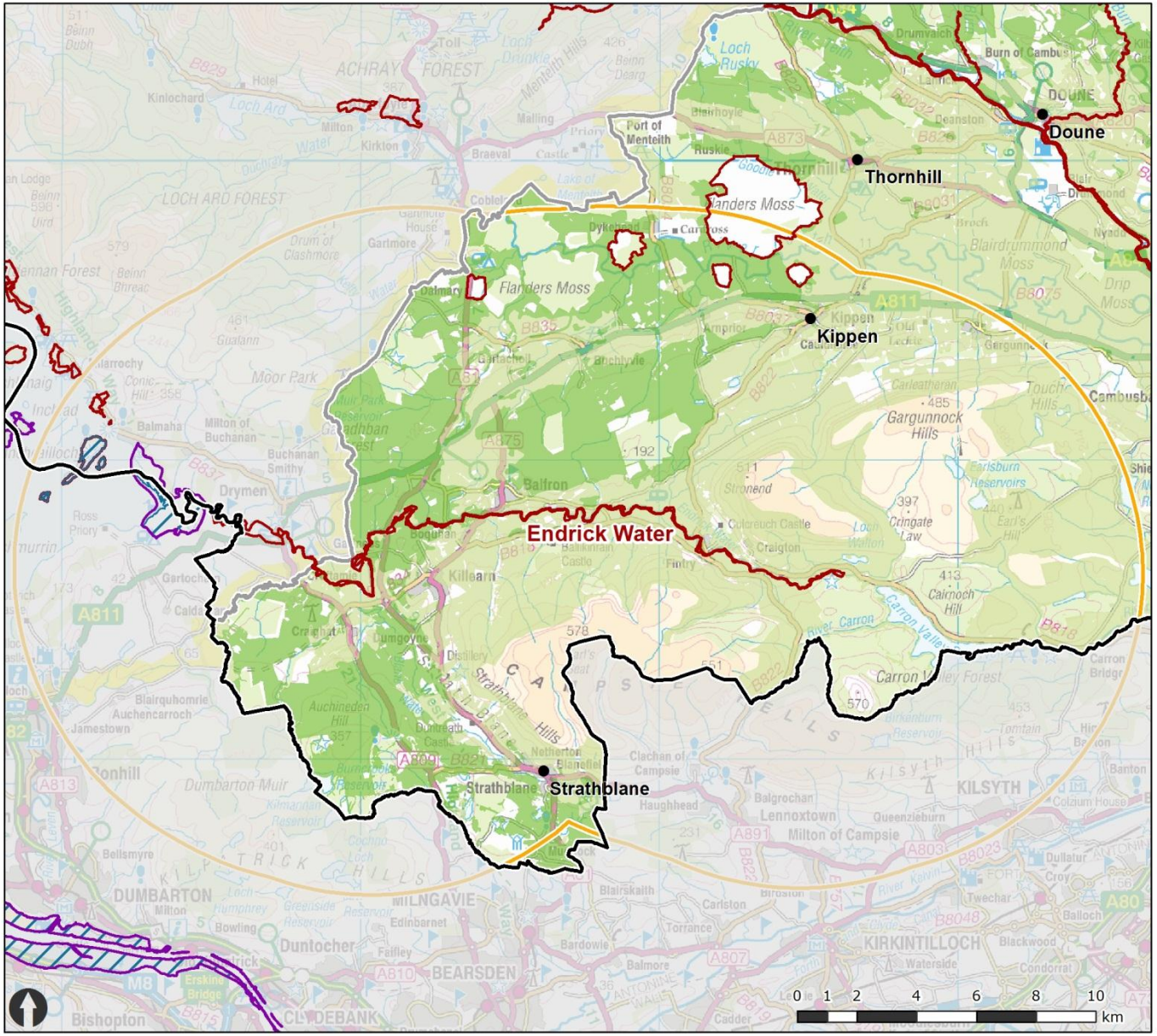
Potential for Woodland Expansion

- Preferred
- Potential

TITLE

Figure 3.3
Designated Site - Ben Lawers

LUC



Stirling & Clackmannanshire

Forestry & Woodland Strategy
Habitats Regulations Appraisal

Legend

- Settlements
- Study area
- Local Authority Boundary
- Special Protection Area
- Ramsar wetlands
- Special Area of Conservation
- Buffer - 10km

Potential for Woodland Expansion

- Preferred
- Potential

TITLE

Figure 3.4
Designated Site - Endrick Water

LUC

Stirling & Clackmannanshire

Forestry & Woodland Strategy
Habitats Regulations Appraisal

Legend

- Settlements
- Study area
- Local Authority Boundary
- Special Protection Area
- Ramsar wetlands
- Special Area of Conservation
- Buffer - 10km

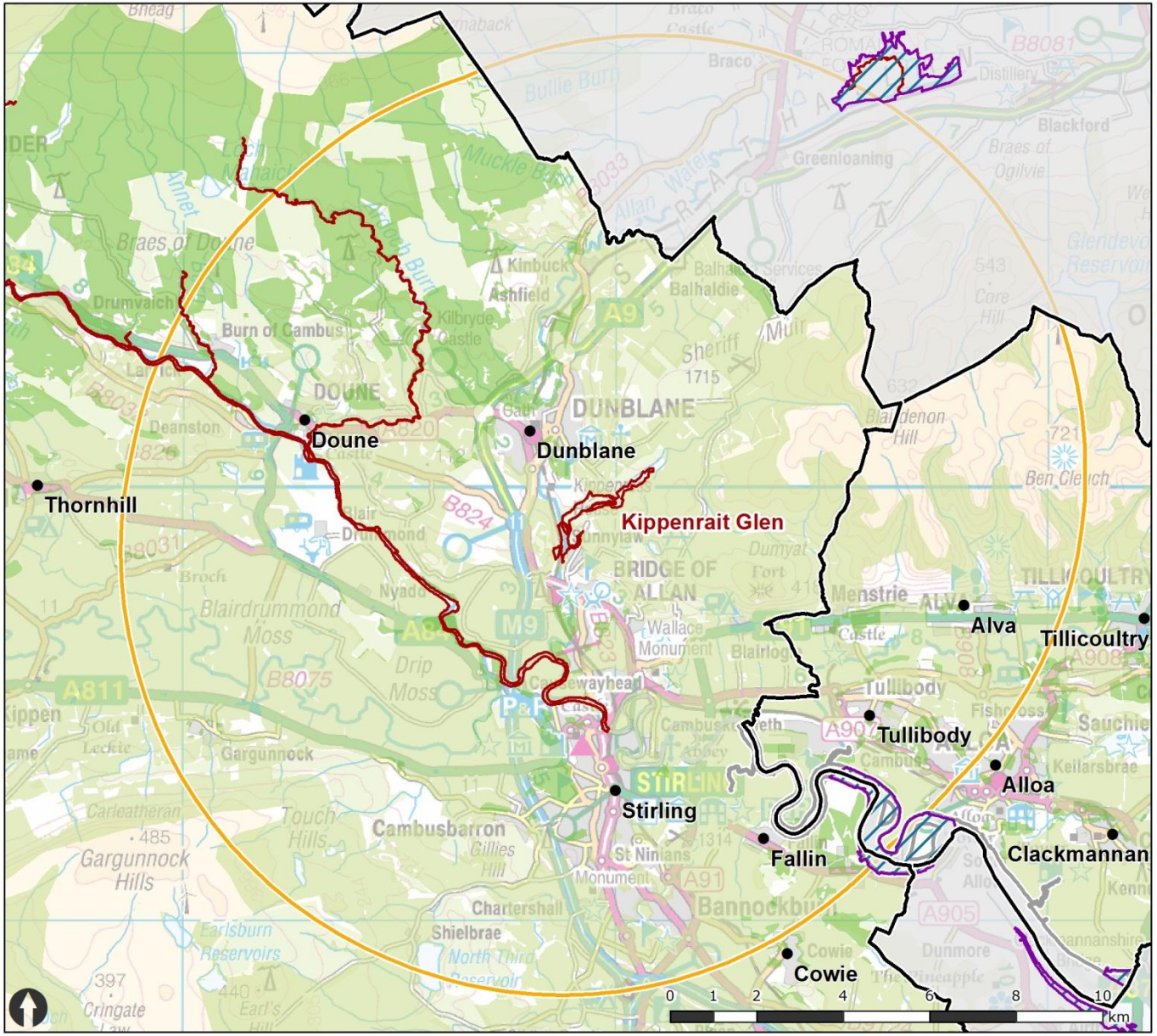
Potential for Woodland Expansion

- Preferred
- Potential

TITLE

Figure 3.5
Designated Site - Flanders Moss

LUC



Stirling & Clackmannanshire

Forestry & Woodland Strategy

Habitats Regulations Appraisal

Legend

- Settlements
- Study area
- Local Authority Boundary
- Special Protection Area
- Ramsar wetlands
- Special Area of Conservation
- Buffer - 10km

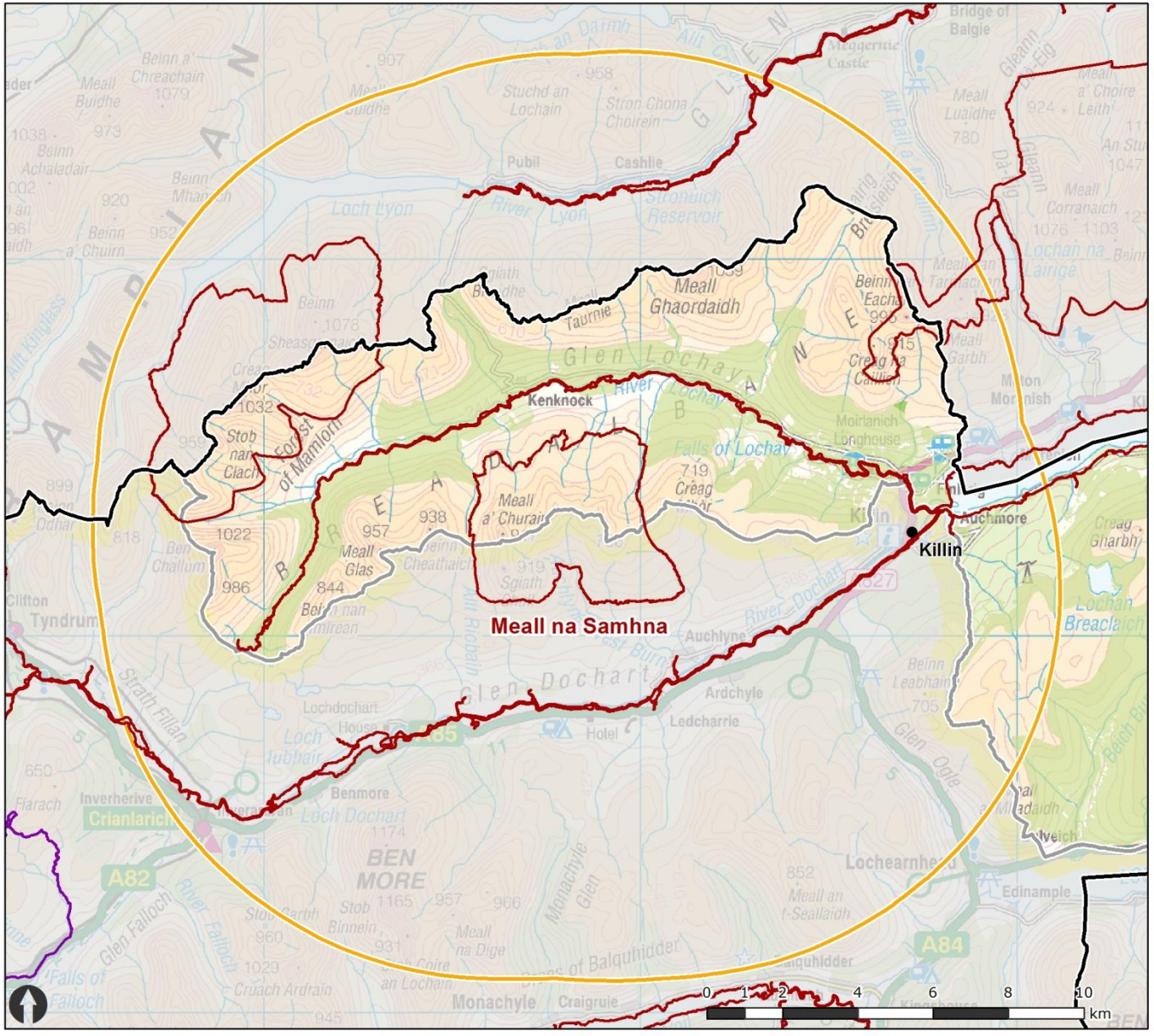
Potential for Woodland Expansion

- Preferred
- Potential

TITLE

Figure 3.6
Designated Site - Kippenrait Glen

LUC



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Forestry & Woodland Strategy
Habitats Regulations Appraisal

Legend

- Settlements
- Study area
- Local Authority Boundary
- Special Protection Area
- Ramsar wetlands
- Special Area of Conservation
- Buffer - 10km

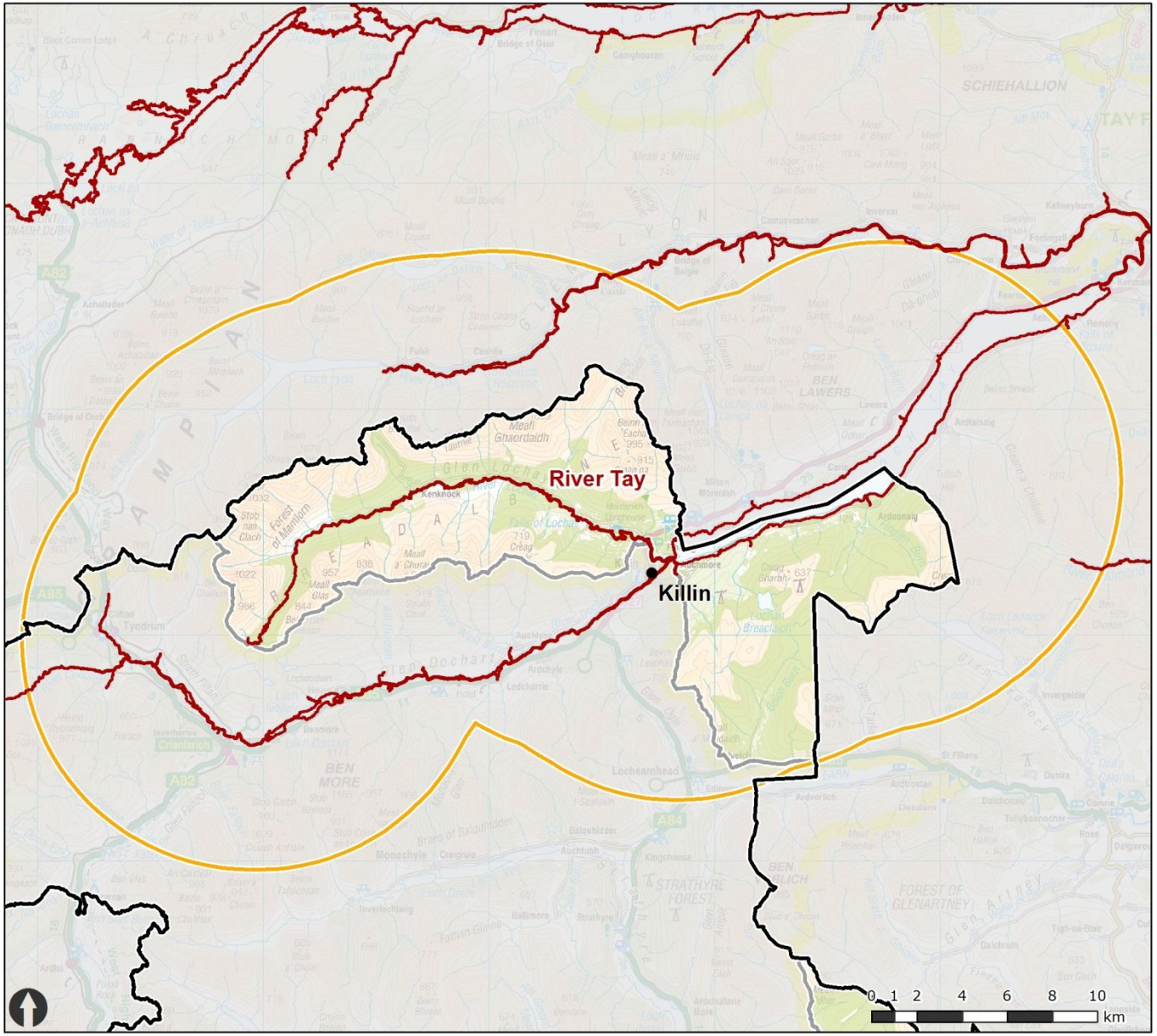
Potential for Woodland Expansion

- Preferred
- Potential

TITLE

Figure 3.7
Designated Site - Meall na Samhna

LUC



Stirling & Clackmannanshire
Forestry & Woodland Strategy
Habitats Regulations Appraisal

Legend

- Settlements
- Study area
- Local Authority Boundary
- Special Area of Conservation
- Buffer - 10km

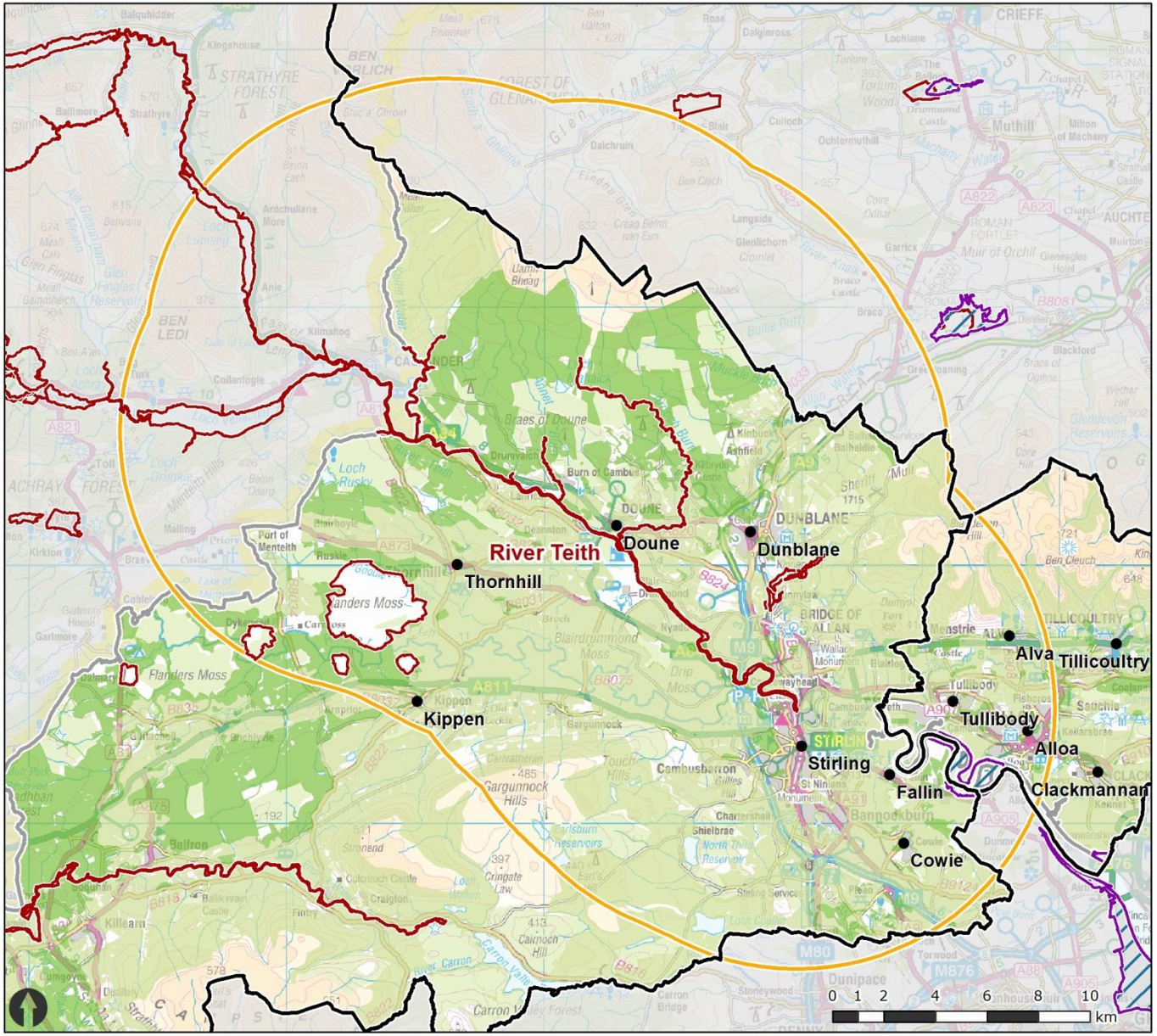
Potential for Woodland Expansion

- Preferred
- Potential

TITLE

Figure 3.8
Designated Site - River Tay

LUC



Stirling & Clackmannanshire
Forestry & Woodland Strategy
Habitats Regulations Appraisal

Legend

- Settlements
- Study area
- Local Authority Boundary
- Special Protection Area
- Ramsar wetlands
- Special Area of Conservation
- Buffer - 10km

Potential for Woodland Expansion

- Preferred
- Potential

TITLE

Figure 3.9
Designated Site - River Teith

LUC