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Action 27 Peat pr

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The Scottish Soil Framework: what next?

- Currently unclear but proposal to integrate the soils agenda into the Scottish Land Use Strategy
- Part of the Climate Change (Scotland) Act 2009
- Explicit recognition of the role that land use and soils play in climate change mitigation. Comprises:
 - 10 principals
 - 13 proposals



Getting the best from our land A land use strategy for Scotland



Land Use Strategy: Proposal 7

- The Scottish Government (SG) will "identify more closely which types of land are best for tree planting in the context of other land-based objectives...".
 - Recognition that some woodlands were planted on inappropriate sites in the past
- Trees being planted with the objective of carbon sequestration being one of the principal drivers
- SG established a Woodland Expansion Advisory Group to provide advice on this proposal
- A study was commissioned to inform the group's work:
 - To determine the impact of various constraints on the availability of land for woodland expansion
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Implicit recognition of soil functions in the process





Identified three basic land types

 Phase 1 - land that is predominantly not available for woodland expansion





- Phase 2 land that is affected by national designations and policies which impose varying degrees of constraint on woodland expansion
- Phase 3 to characterise the land that is not included in the first two categories and which is therefore most likely to have potential for woodland expansion
 - And to indicate in a very broad sense what this means for woodland

Phase 1 - land that is predominantly not available for woodland expansion





- To include:
 - Current woodland
 - Land biophysically and biologically unsuitable for planting
 - Built up land
 - Prime agricultural land (LCA classes 1 3.1)
 - Areas of peat deeper than 0.5 metres
 - Whilst recognising that there will be small scale woodland opportunities in urban areas and on prime agricultural land





 Land biophysically and biologically unsuitable for planting







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st Research



Soils more valuable for 'providing valued habitats & sustaining biodiversity'





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 - Carbon storage
 - Biodiversity
- Large areas now being restored to their original state and function



High quality agricultural land

- Based on the Land Capability for Agriculture (LCA) Classification
 - To rank land according to the extent that biophysical properties of the land impose restrictions on its agriculture use
 - Biophysical properties soil, climate, relief and vegetation
 - Agricultural use potential productivity and cropping flexibility
 - Based on published guidelines to ensure consistency between users
- Recognition that the biomass function (food production) should take precedence



The Classification

A seven class system; four classes are subdivided into divisions

Classes 1-4 comprises land suitable to arable cropping

Classes 5-7 comprises land suited only to improved grassland and rough grazings

LAND CAPABLE OF PRODUCING A VERY WIDE RANGE OF CROPS

Cropping is highly flexible and includes the more exacting crops such as winter harvested vegetables (cauliflower, brusseld sprouts, leeks). The level of yield is consistently high. Sola are usually well-drained deep loams, sandy loams, sity loams or their related humic variants with good reserves of moisture. Sites are level or gently sloping and the climate is favourable. There are no or only very minor physical limitations affecting agricultural use.

LAND CAPABLE OF PRODUCING A WIDE RANGE OF CROPS

Cropping is very flexible and a wide range of crops can be grown but the land may be unsuited to winter harvested crops. The level of yield is high but less consistently obtained than on Class 1 land due to the effects of minor limitations affecting cultivation, crop growth or harvesting. The limitations include, either singly or in combination, slight workability or wetness problems, slightly unfavourable soil structure or texture, moderate slopes or slightly unfavourable climate. The limitations are always minor in their effects and land in the class is highly productive.

LAND CAPABLE OF PRODUCING A MODERATE RANGE OF CROPS

Land in this class is capable of producing good yields of a name range of crops, principally cereals and grass, and/or moderate yields of a wider range including potatoes, some vegetable crops, (e.g. field beans and summer harvested brassicae) and oil seed rape. The degree of variability between years will be greater than is the case for Classes 1 and 2, mainly due to interactions between climate, soil and management factors affecting. The moderate limitations require careful management and include wetness, restrictions to rooting depth, unfavourable structure or texture, strongly sloping ground, slight erosion or a variable climate. The range of soil types within the class is greater than for previous classes.

LAND CAPABLE OF PRODUCING A NARROW RANGE OF CROPS

The land is suitable for enterprises based primarity on grassland with short arable breaks (e.g. barley, oats, forage crops). Yields of arable crops are variable due to soil, wetness or climatic factors. Yields of grass are often high but difficulties of production or utilsation may be encountered. The moderately severe levels of limitation restrict the choice of crops and demand careful management. The limitations may include moderately severe wetness, occasional damaging floods, shallow or very stony soils, moderately steep gradients, moderate erosion risk, moderately severe climate or interactions of these which increase the level of farming nak.





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So by recognising soil functions, land most appropriate for woodland expansion is identified

• biophysically unsuitable primarily in the Highlands

 peat > 50 cm deep in Caithness and Sutherland for example

- prime agricultural land on the low ground in the east
- recognisable pattern of current, woodland



Phase 1 results



Constraint	Area (hectares)
Current woodland extent	1 385 600
Biophysical & biological constraints	1 233 900
Prime agricultural land	566 500
Peat	657 100
Total	3 585 400

Phase 1 results

Almost 3.6 million ha (about 46% of Scotland)



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Area

Phase 2 - land that is affected by national designations and policies which impose varying degrees of constraint on woodland expansion





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Conservation designations (<u>most</u> are open ground habitats)

- Sites of Special Scientific Interest
- National Nature Reserves
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- Special Protection Areas
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Catchments at risk of acidification

Heritage sites

Recognition that the biodiversity and cultural functions of soil are important



Approximately 1.6 m hectares (20% of Scotland) is in a designated site and not in Phase 1

But some opportunities for woodland expansion exist on some sites where woodland is a key feature of the landscape.





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 - Unlikely to be converted to any extent?





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Agriculture and woodland tend to be separate land uses in Scotland with relatively little integration



How was the work used?



- It established a key landmark in the Group's discussions
 - All parties agreed in principle that the overall findings were robust
 - And provided a way forward for more detailed discussions
 - 25% target cover by 2050 was dropped and replaced by shorter term woodland expansion targets
 - Recommended a more integrated approach between farming and forestry
- But a lot of negotiation between different stakeholders is still required at national and local levels



Concluding remarks

- The Scottish Soil Framework (SSF) is the first explicit political recognition that 'Scotland's soils are one of the Nation's greatest assets'
 - Such recognition cannot be underrated
- The Framework has raised the status of soils in other policy areas of Government
- The Framework prompted a number of outreach activities that has helped raise awareness with the general public
- The importance of soil <u>management</u> runs through both SSF and the Land Use Strategy
 - From the intensive arable sector to the peatlands of upland Scotland
 - Driven by concerns on the impacts that inappropriate management has on climate change and water quality





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 Does this demonstrate that soil should be at the heart of environmental regulation and protection and not on the fringes?



Acknowledgements



Thank you to the Scottish Government for financial and

other support over a number of years





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SEE YOU IN 2022

We will be hosting the 2022 World Congress of Soil Science in Glasgow, Scotland.







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