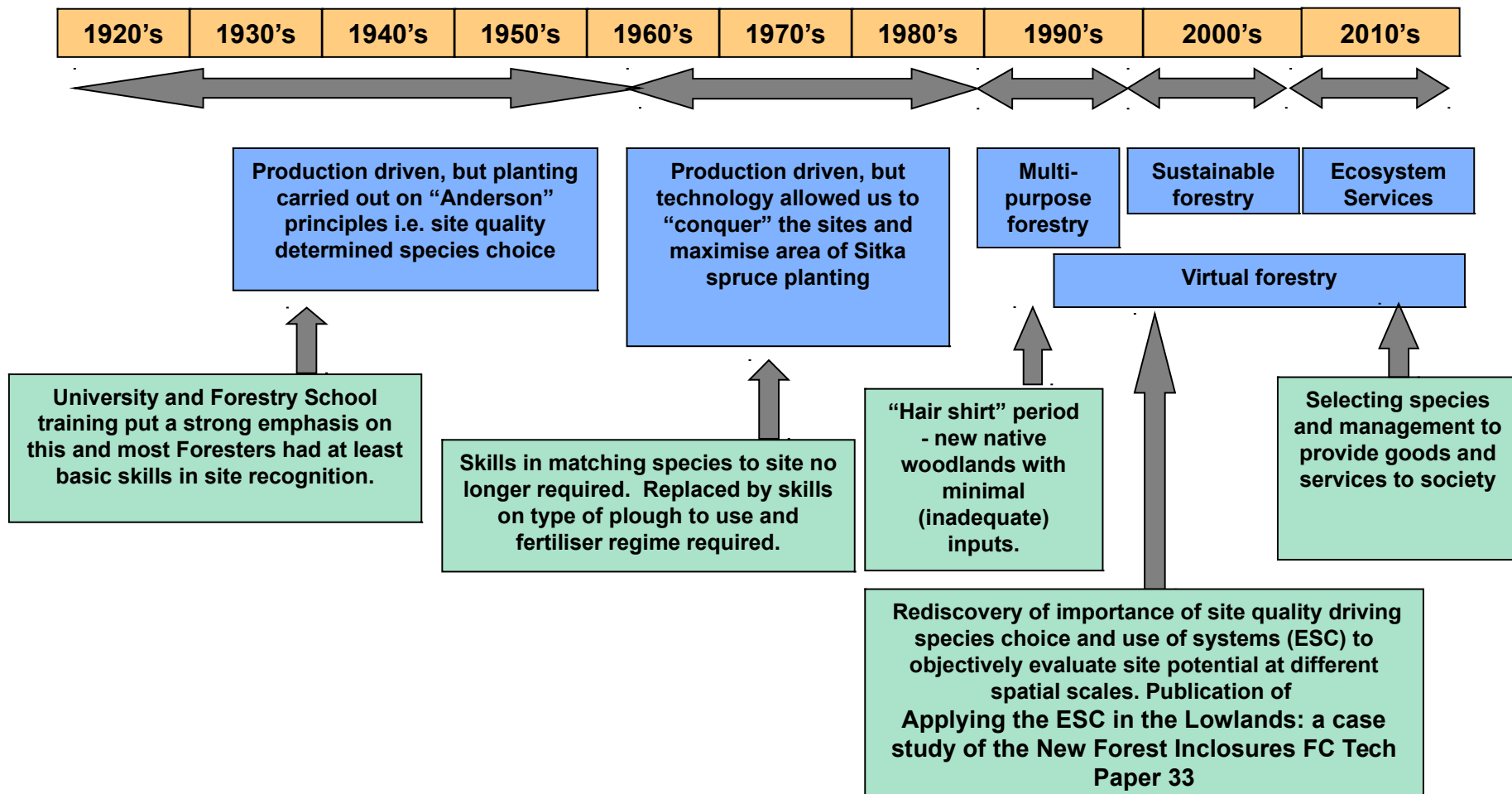


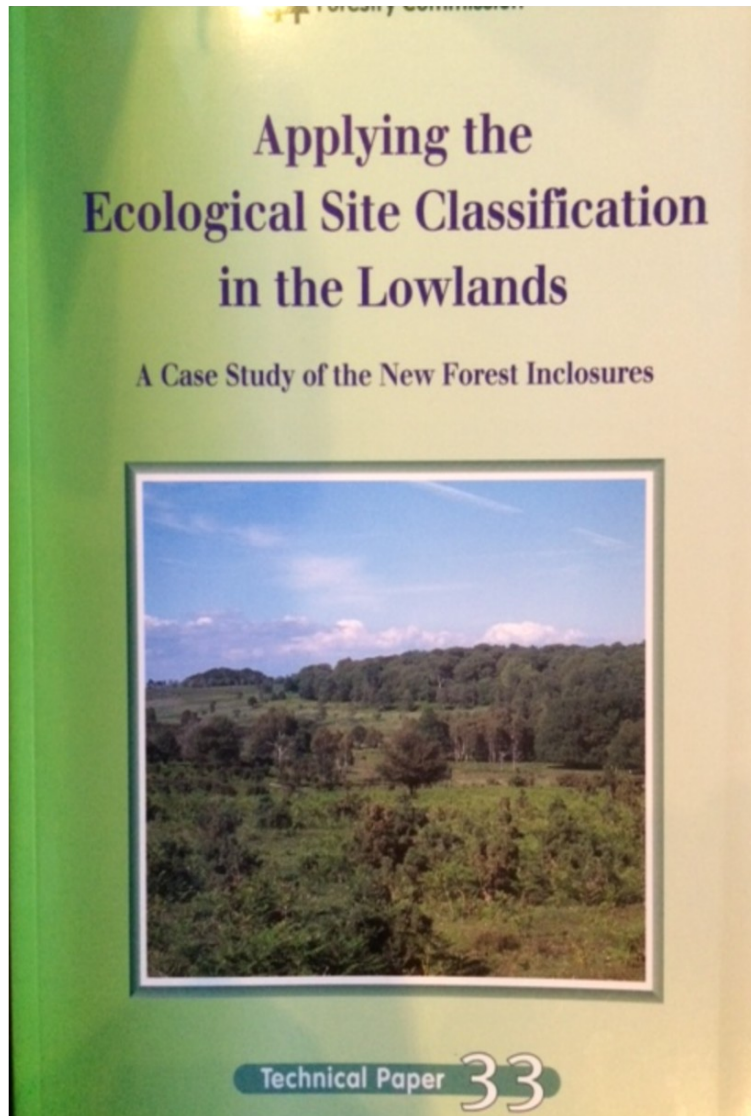
Ecological Site Classification: Forests for the Future

New Forest Consultation

Stephen Bathgate, Kate Beauchamp and
Duncan Ray

- Changes in forest management objectives in forest planning
- Introduction to Ecological Site Classification(ESC)
- Characterise New Forest using ESC site types
- Assess oak and beech sites in the New Forest with ESC
- Future climate projection outlook
- Climate change: abiotic and biotic impacts upon species
- Questions



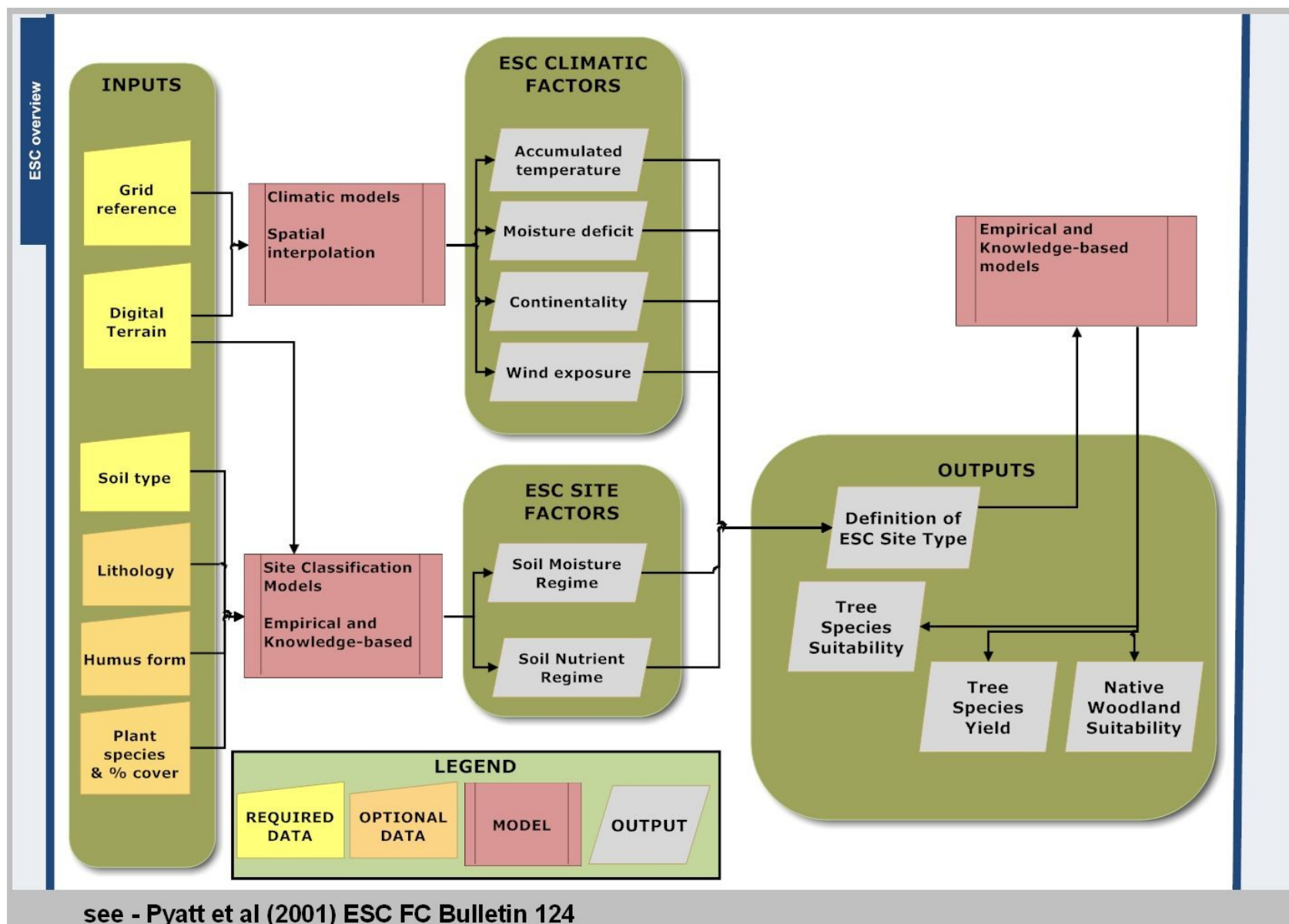


Published in 2003

Objective was to assess the site types of the Inclosures to plan appropriate tree species for the range of sites:

- Summer moisture supply limits species/growth
- Pedunculate oak suited to wetter soils
- Sessile oak suited to drier soils

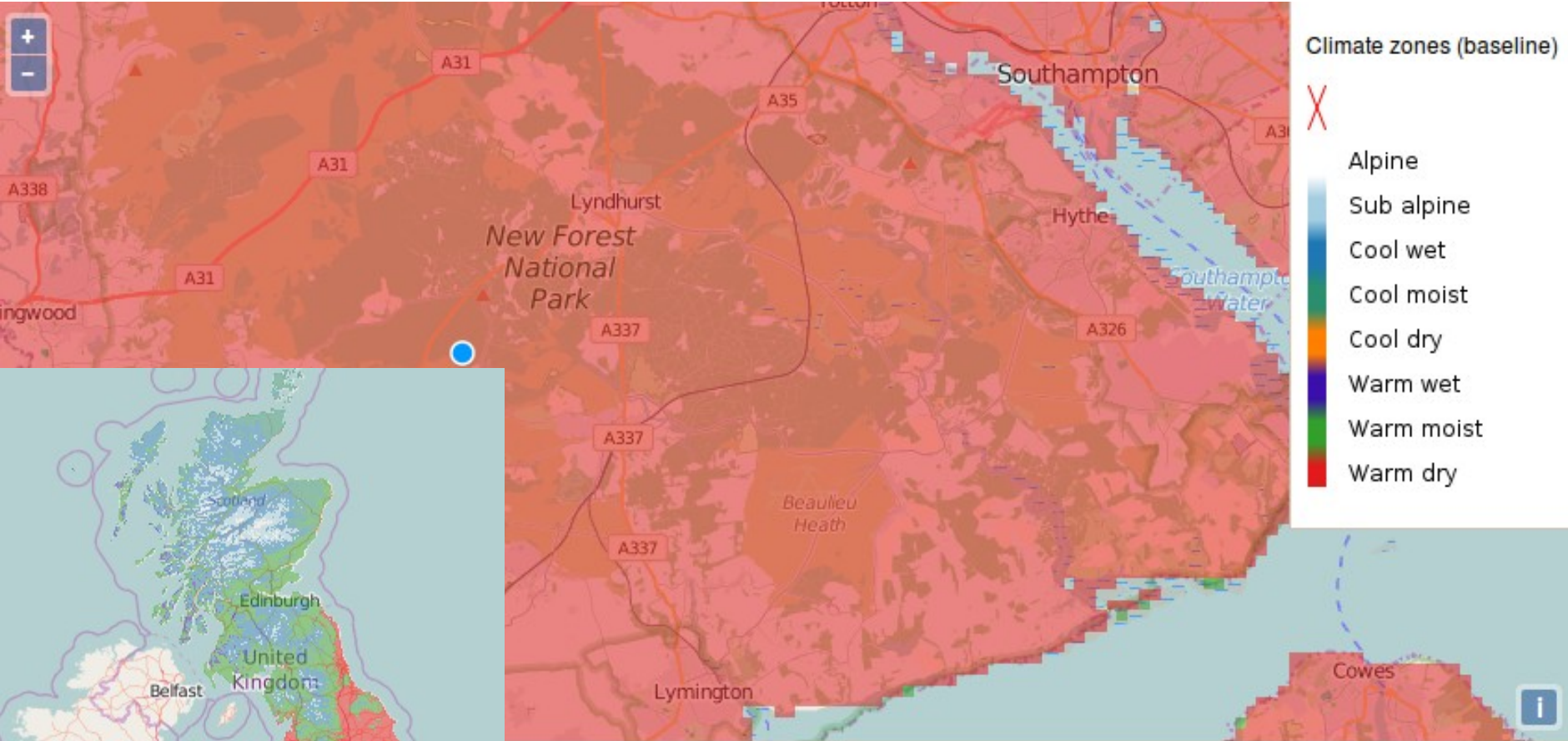
1. Tools/models that simplify a complex problem so that users can evaluate the relative merits of different management actions.
2. **Intended to complement, not replace, expert/local knowledge.**



1. Climate = temperature, exposure, rainfall
2. Soil = moisture, nutrient status
3. Climate + soil = tree species potential

ESC represents the current understanding of tree species interactions with site variables from current and future climates.

Does not account for genetics, compensating factors, pests, disease and subtle species specific behaviour.

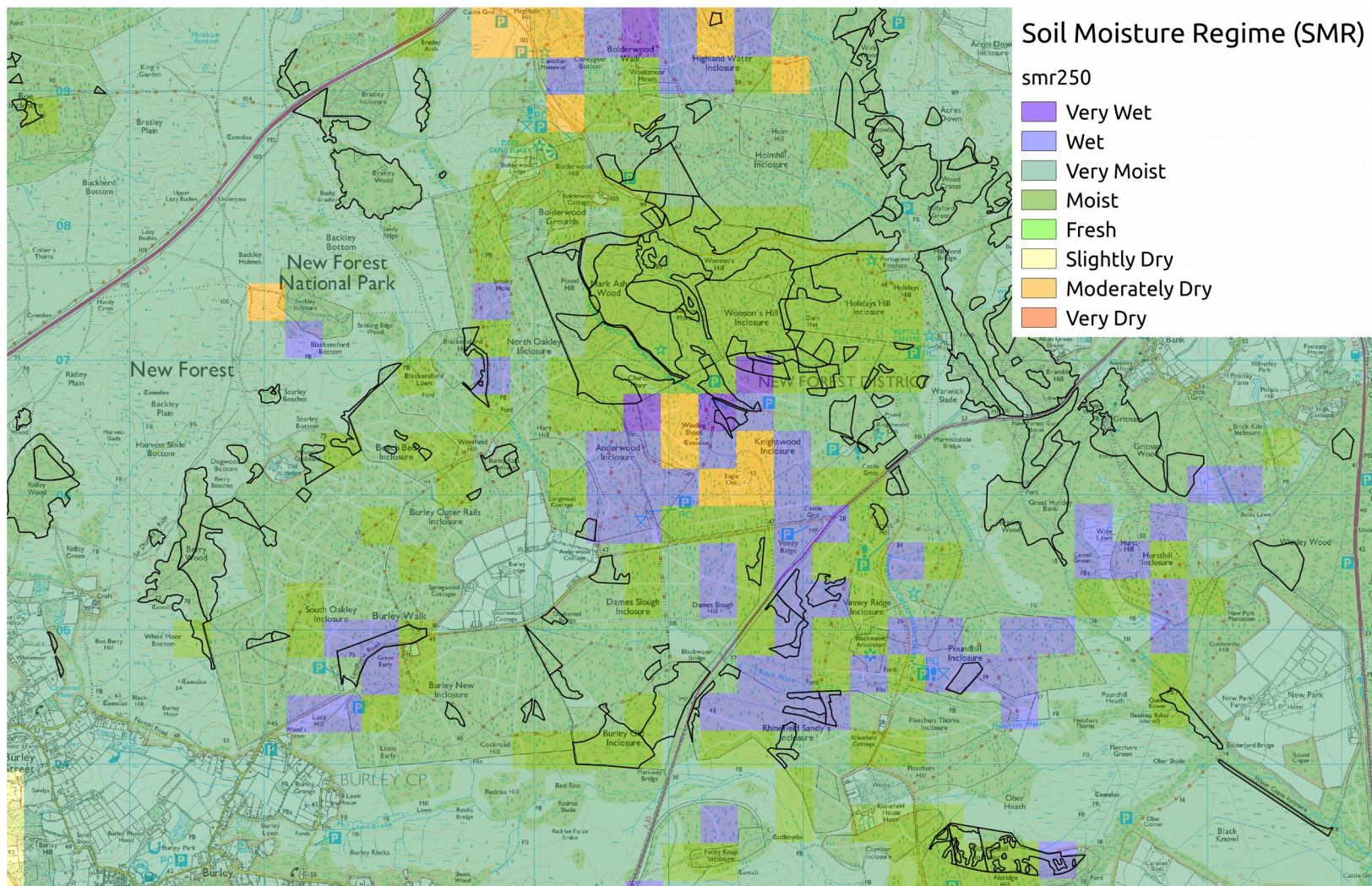


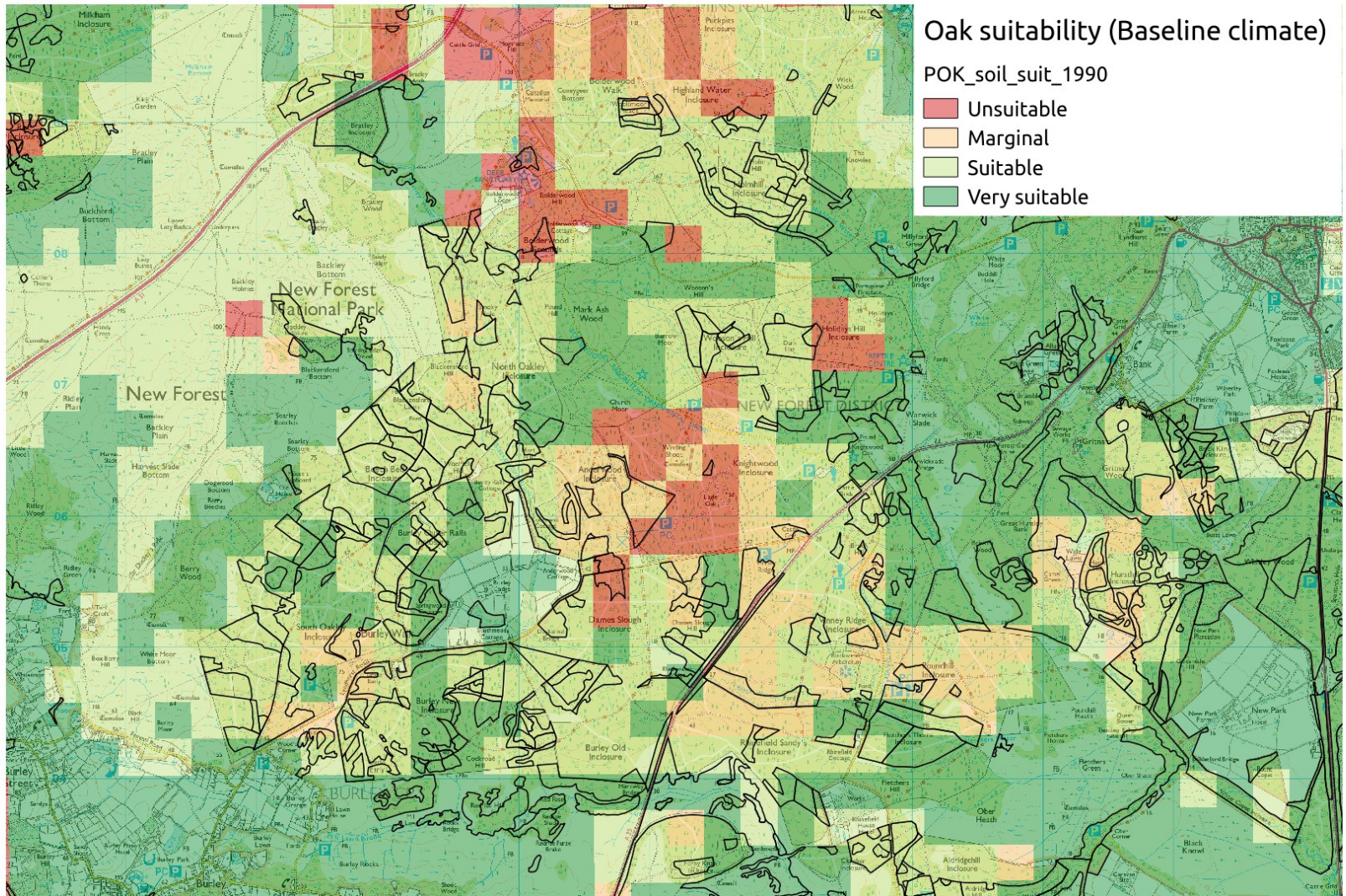
New forest climate= warm, dry and sheltered

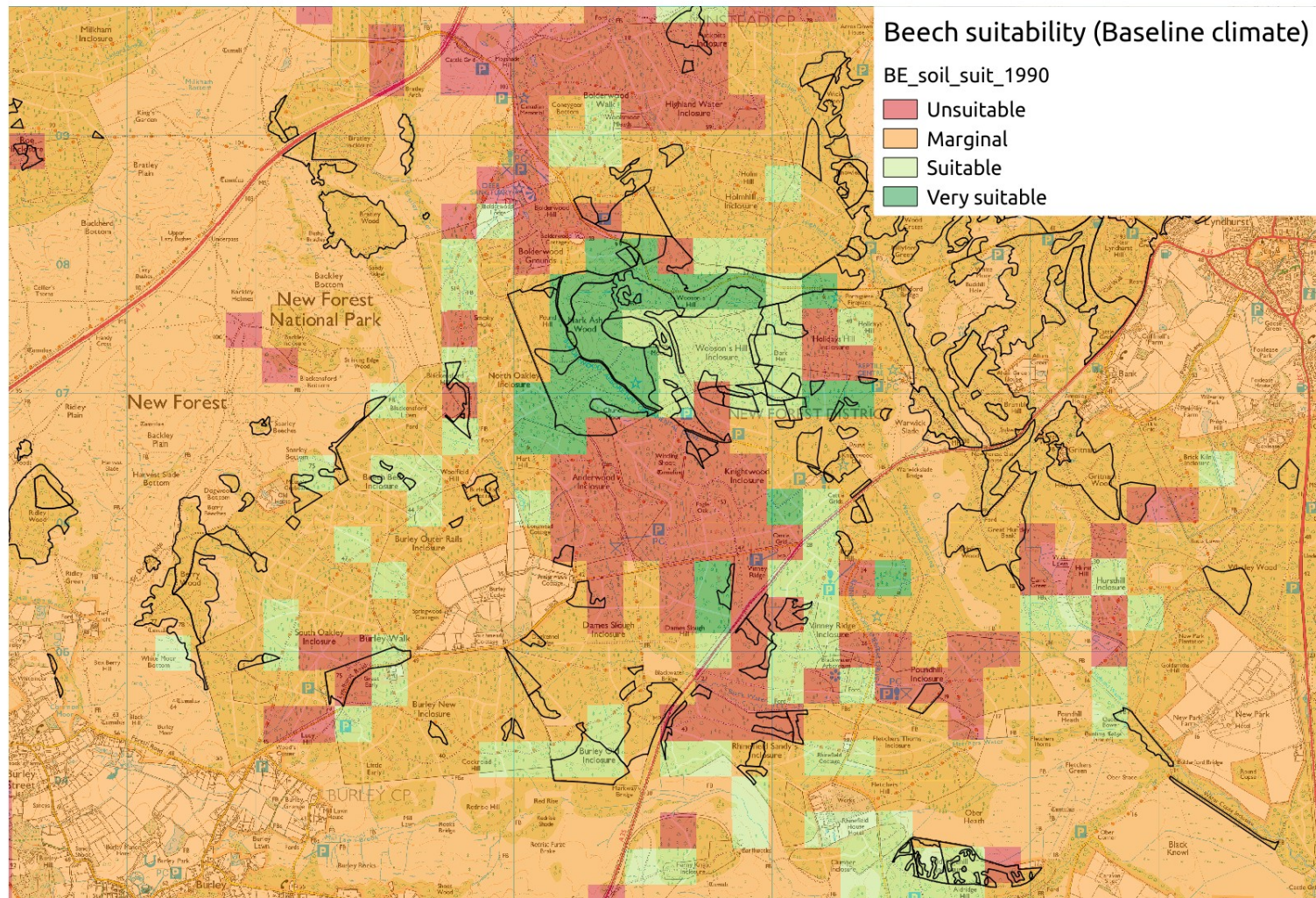
		Soil nutrient regime					
		Very Poor	Poor	Medium	Rich	Very Rich	Carbonate
Humus form		mor	mor, moder	moder, oligomull	oligomull, eumull	eumull	eumull
Soil moisture regime	Very Dry	Rankers and shingle					Rendzinas
	Mod. Dry	Gravelly or sandy podzols and ironpan soils		Gravelly or sandy brown earths			
	Sl. Dry						
	Fresh	Loamy podzols and ironpan soils		Loamy brown earths		Loamy brown earths of high base status	Calc-areous brown earths
	Moist						
	V. Moist	Podzolic gleys and peaty ironpan soils		Brown gleys		Brown gleys of high base status	Calc. brown gleys
	Wet			Surface-water gleys		Surface-water gleys of high base status	Calc. surface-water gleys
	Very Wet	Unflushed peaty gleys and deep peats		Flushed peaty gleys and deep peats		Humic gleys of high base status and fen peats	

New Forest

New Forest







Beech poorly suited to wet/poor soil types

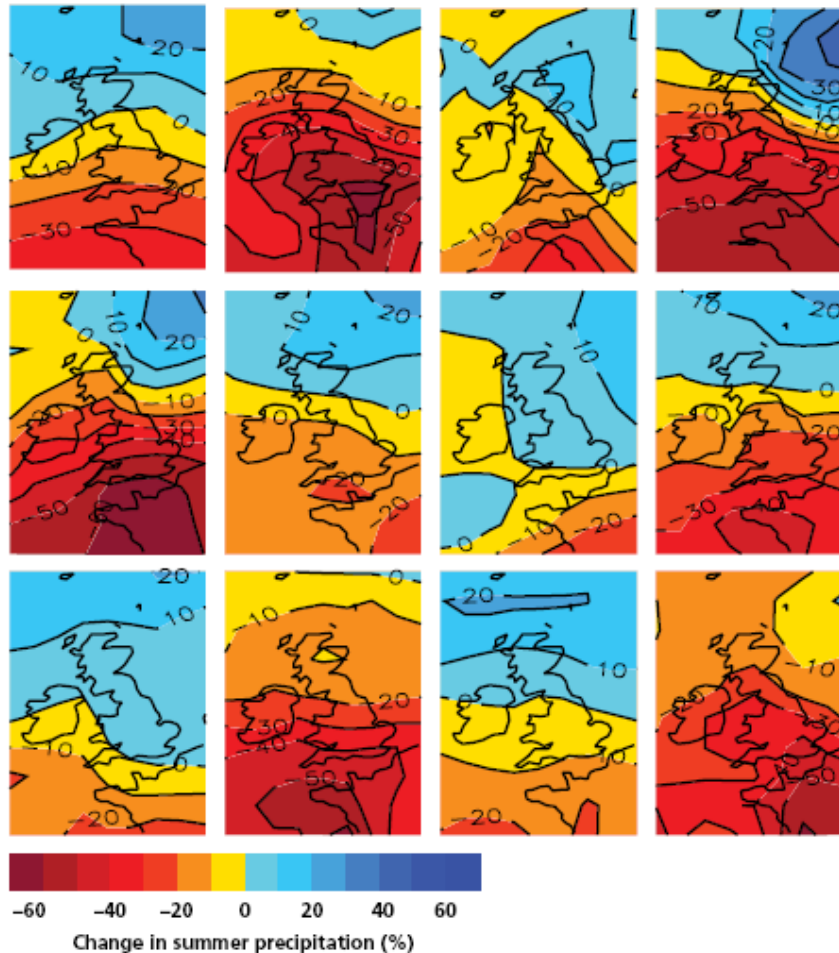
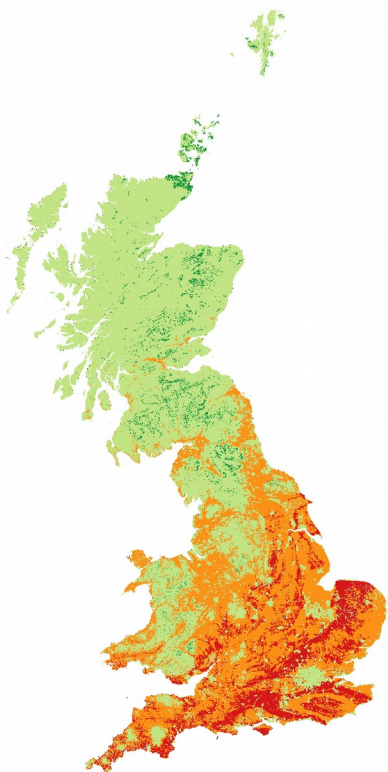


Figure 4: Changes (%) in summer (June–August) precipitation by the period 2071–2100 compared to 1961–1990, from 12 climate models, each of which took part in the IPCC AR4, all driven with the same emissions scenario. (Data source: PCMDI for IPCC.)

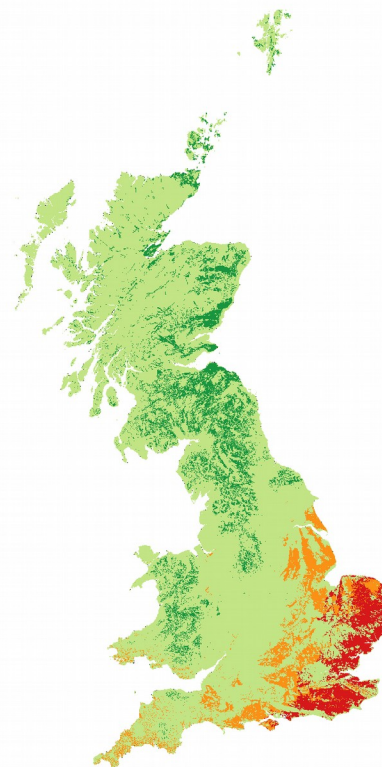
Timber potential change

change

-  Severe decline
-  Decline
-  Stays same
-  Improves



Beech change 2050



Pedunculate oak change 2050

Drier summer climate = reduced productivity.

Wetter winter climate = waterlogging.

} Pests and Pathogens

Provisioning (timber) and regulating (carbon sequestration) ecosystem service indicators forecast to decline. Cultural indicators might be maintained through ecologically suitable species and management.

Opportunities and threats to native and exotic species from climatic change.

Correct species choice for present and future conditions will help minimise risks. Mixed forests will offer greater resilience in the event of pest/disease outbreaks.

Thank You

Some references

[http://www.forestry.gov.uk/pdf/FCTP033.pdf/\\$FILE/FCTP033.pdf](http://www.forestry.gov.uk/pdf/FCTP033.pdf/$FILE/FCTP033.pdf)

<http://www.forestry.gov.uk/esc>