Forestry England

Species for the Future - Methodology

Background

Tree species diversity is a fundamental building block of forest resilience. To help our planning, operations and investment, we have identified a core species list of 30 tree species – our 'Species for the Future'. These species have been selected based on analysis of their individual traits, using robust evidence to identify those species that have the best chance of thriving in the future.

Methodology

We used a 'multi-criteria decision analysis' to rank and prioritise tree species. For a longlist of 63 species, we gathered detailed information across 10 criteria (table below).

We then asked our forestry experts to score these 10 criteria in order of importance, which allowed us to generate criteria weightings. All this information was combined to generate a unique score and rank for every species. We repeated this exercise for each of our six districts, using locally tailored data (like climate suitability) and criteria weightings. Finally, we created our overall national list – our Species for the Future – by including each district's top 15 species (as a minimum). This ensured that we accounted for the individuality of every district, as well as those species that were universally important.

Objective	Criteria	Data source
Suited to current and future climatic conditions	Suitability to future climate	Environmental Site Classification (ESC) models – species' ecological suitability predicted for 2080
	Confidence in planting establishment	Forest Research classification of native, principal, secondary, plot-stage and specimen species
	Drought tolerance	Academic peer-reviewed literature, supplemented by expert opinion
Tolerant to current and future pest and pathogen pressures	Tolerance to 'high risk' pests and diseases currently in the UK	UK Plant Health Risk Register - susceptibility to the high risk (risk rating >60) pests/pathogens currently *present* in the UK
	Tolerance to 'high risk' pests and diseases not yet in the UK	UK Plant Health Risk Register - susceptibility to the high risk (risk rating >60) pests/pathogens that are currently *absent* from the UK

Provide commercial timber products	Future potential productivity (growing speed)	Environmental Site Classification (ESC) models – species' timber suitability (yield class) predicted for 2080
	Technical timber suitability for use in construction	Academic peer-reviewed literature, supplemented by expert opinion
	Range of timber end uses	CABI compendium and expert opinion to score delivery against 18 potential timber products
Feasible to be supplied by our nursery	Current seed availability, or feasibility of establishing new sources	Seed supply catalogues and expert opinion
	Suitability to propagation in a commercial tree nursery	Nursery expertise