Supplementary information

The following supplementary figures illustrate the percentage change in area of grass and tree PFTs following afforestation.

Percentage change in percentage area of PFTs following broadleaf afforestation
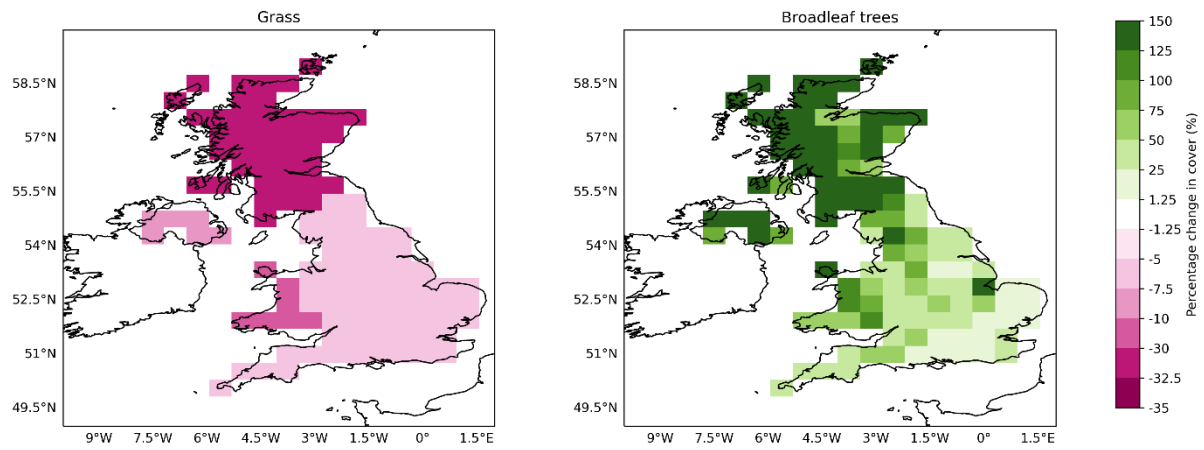
Figure S1. Percentage change in the cover of grass and broadleaf tree PFTs following broadleaf afforestation.

Percentage change in percentage area of PFTs following needleleaf afforestation
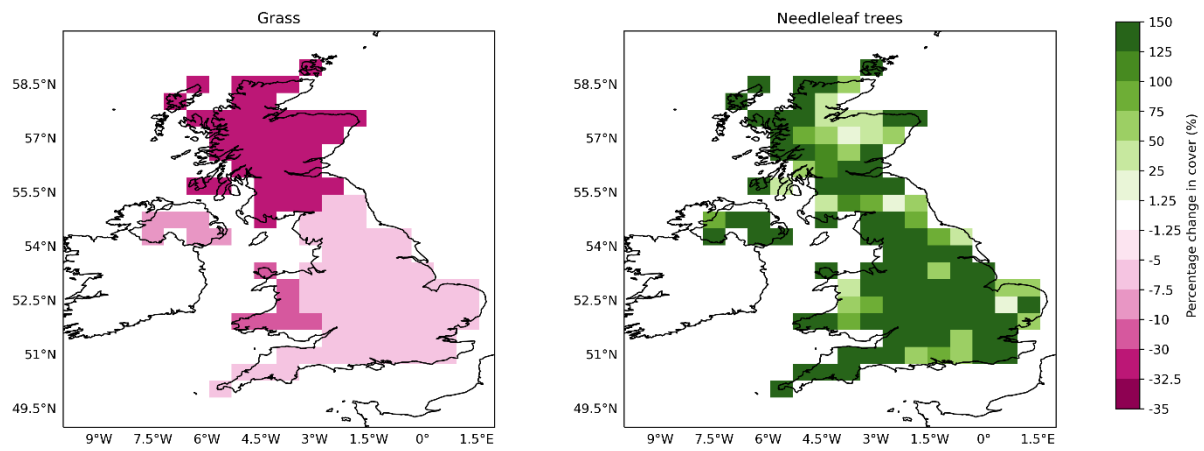
Figure S2. Percentage change in the cover of grass and needleleaf tree PFTs following needleleaf afforestation.

Future Forests: estimating biogenic emissions from net-zero aligned afforestation pathways in the UK

The following supplementary figures illustrate the percentage change in BVOC emissions by afforestation experiment relative to present day land cover.

Percentage change in annual isoprene emissions between afforestation experiments and present day land cover
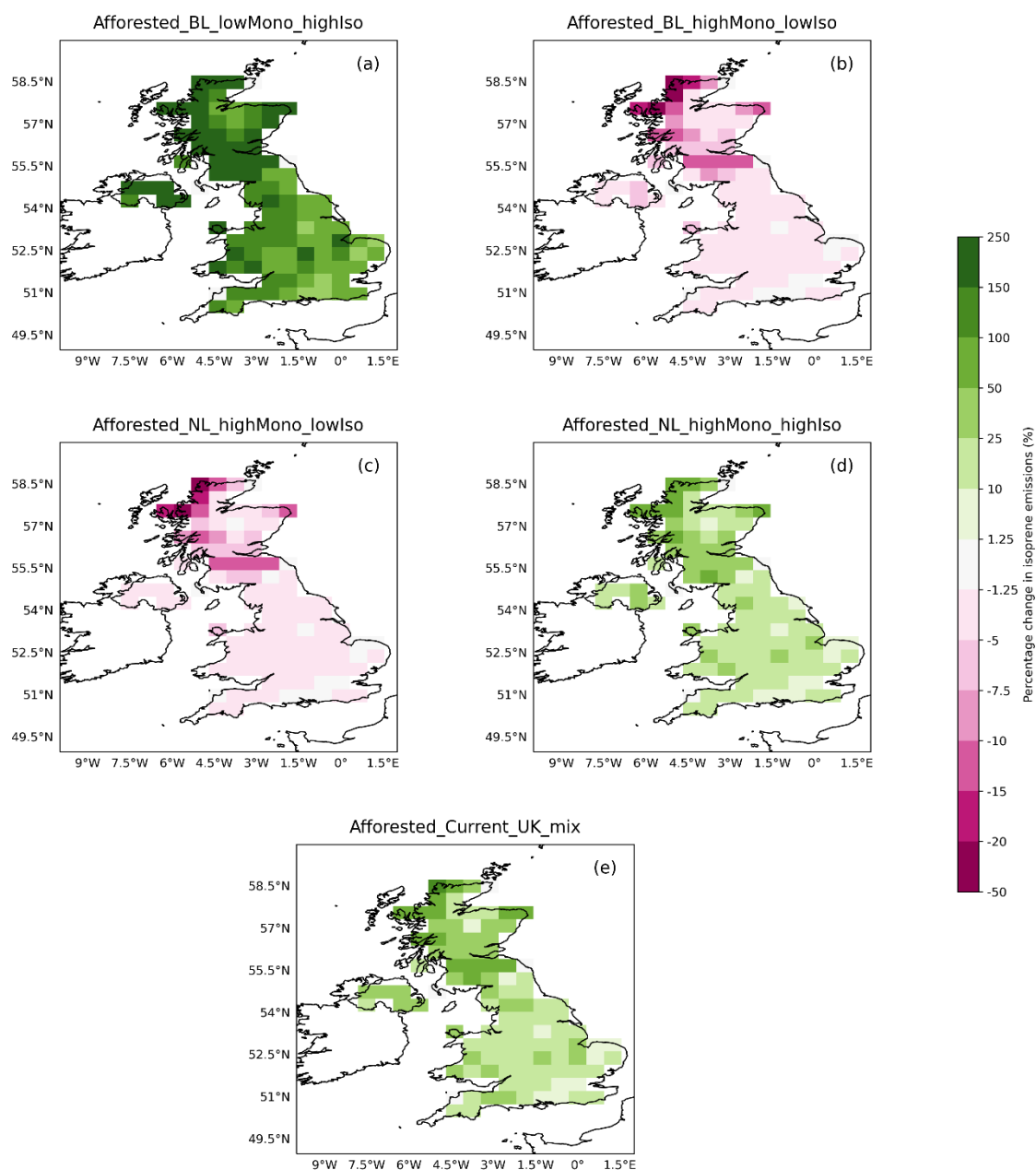
Figure S3. Distribution of the percentage change in modelled annual UK isoprene emissions following afforestation for five afforestation experiments; a) Afforested_BL_lowMono_highIso, b) Afforested_BL_highMono_lowIso, c) Afforested_NL_highMono_lowIso, d) Afforested_NL_highMono_highIso and e) Afforested_Current_UK_mix. Experiment configuration is detailed in Table 4.

Percentage change in annual total monoterpene emissions between afforestation experiments and present day land cover
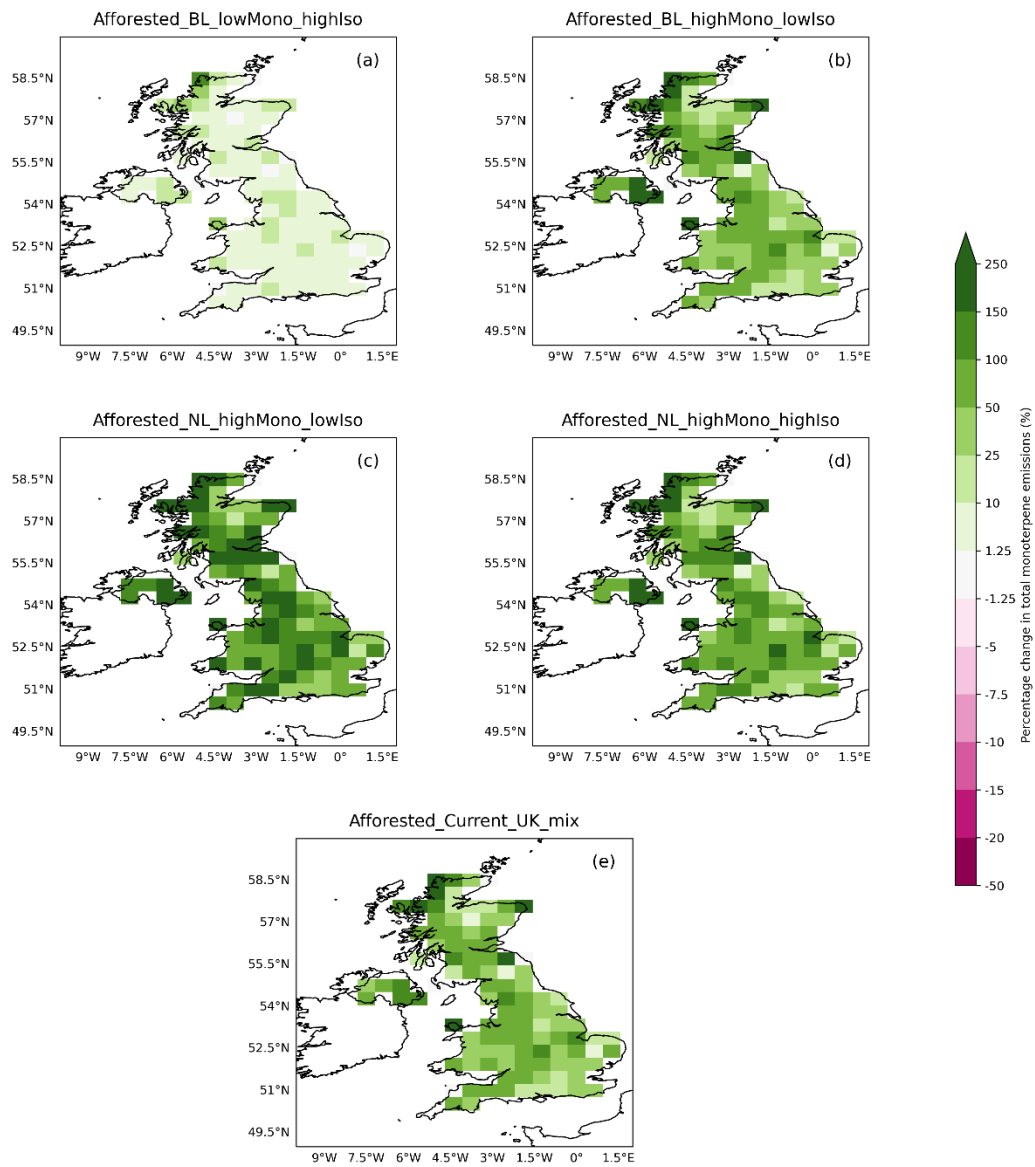
Figure S4. Distribution of the percentage change in modelled annual UK total monoterpene emissions following afforestation for five afforestation experiments; a) Afforested_BL_lowMono_highIso, b) Afforested_BL_highMono_lowIso, c) Afforested_NL_highMono_lowIso, d) Afforested_NL_highMono_highIso and e) Afforested_Current_UK_mix. Experiment configuration is detailed in Table 4.

Table S1. Matrix of tree species data reviewed to determine the appropriate UK tree species for inclusion in the emissions potential review and development of emissions potential scenarios.

Tree species	Included in Forest Research tree species database (Forest Research, no date)	Makes up high proportion of current tree species (Forest Research, 2022)	Included in EU forests4F study (Mauri et al., 2022)	Has species specific EP available	Has data for both Isoprene and Monoterpenes	Include?
Common alder	✓	✗	✓	✓	✓	✓
Scots pine	✓	✓	✓	✓	✓	✓
Corsican pine	✓	✓	✓	✓	✓	✓
Lodgepole pine	✓	✓	✗	✓	✓	✓
Sitka spruce	✓	✓	✗	✓	✓	✓
Norway spruce	✓	✓	✓	✓	✓	✓
European larch	✓	✗	✓	✓	✓	✗
Hybrid larch	✓	✗	✗	✓	✓	✗
Douglas fir	✓	✓	✗	✓	✓	✓
Silver birch	✓	✓	✓	✓	✓	✓
Downy birch	✓	✗	✓	✓	✓	✓
Sessile oak	✓	✓	✓	✓	✓	✓
Pedunculate oak	✓	✓	✓	✓	✓	✓

Beech	✓	✓	✓	✓	✓	✓
Ash	✓	✓	✓	✓	✓	✓
Sycamore	✓	✓	✓	✓	✓	✓
Sweet chestnut	✓	✓	✓	✓	✓	✓
Hornbeam	✓	✗	✓	✓	✗	✗
Common hazel	✗	✓	✓	✓	✓	✗
Hawthorn	✗	✓	✗	✓	✓	✗
Willow	✗	✓	✗	✓	✓	✗
Western red cedar	✓	✗	✗	✓	✓	✗
Western hemlock	✓	✗	✗	✓	✓	✗
Grand fir	✓	✗	✗	✓	✓	✗
Nobel fir	✓	✗	✗	✗	✗	✗