



## Recommended planting species

Species Matrix (2015 Tree Council Update



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## **1 Introduction**

### **1.1 Purpose**

- 1.1.1 Lineside vegetation management is a risk assessed process that contributes to the safe running of the railway infrastructure.
- 1.1.2 This reference document supports the business process for vegetation management.

### **1.2 Scope**

- 1.2.1 This document lists:
  - The types of vegetation species recommended for planting within the Network Rail infrastructure;
  - The types of vegetation species not recommended for planting within, or adjacent to, the Network Rail infrastructure.

### **1.3 Risks and control measures**

- 1.3.1 The recommended planting species matrix is a control for the following threats:
  - Hazardous trees or trees within falling distance of the track or a rail non-rail target;
  - Vegetation affecting OLE, signal sighting, level crossing sighting, position of safety/refuge, obstructing railway infrastructure;
  - Leaf fall affecting railway;
  - Injurious invasive plants.
- 1.3.2 This reference document supports the following control on the threats for Railway or Third party vegetation affecting safety:
  - Undertake vegetation inspections/surveys; Identify risks and implement mitigation.

## 2 Possible species for planting >5m from the outside rail

| Scientific name             | Common name     | Vegetation type |       |       |                   | Safety considerations |              |           |                 |                      | Conservation factor |                   |                   | Visual impact      |                    |                  | Security |        | Comments   |
|-----------------------------|-----------------|-----------------|-------|-------|-------------------|-----------------------|--------------|-----------|-----------------|----------------------|---------------------|-------------------|-------------------|--------------------|--------------------|------------------|----------|--------|--|
|                             |                 | Ground cover    | Shrub | Hedge | Small tree (<10m) | Stable root systems   | Slow growing | Evergreen | Light leaf-fall | Non-brittle branches | High bird value     | High insect value | High mammal value | Attractive foliage | Attractive blossom | Attractive fruit | Dense    | Thorny |  |
| <i>Cornus sanguinea</i>     | Dogwood         |                 | x     | x     | x                 |                       |              |           | x               | x                    | x                   | x                 | x                 |                    | x                  |                  | x        |        | Suckering shrub which prefers chalky soil but can grow on many soil types. Stem pleasing red colour in winter.           |
| <i>Corylus avellana</i>     | Hazel           |                 | x     | x     | x                 |                       |              |           |                 | x                    | x                   | x                 |                   |                    | x                  |                  |          |        | Potential habitat for Dormice. Regenerates well after coppicing.   |
| <i>Crataegus laevigata</i>  | Midland thorn   |                 |       | x     | x                 |                       |              |           | x               |                      | x                   | x                 |                   | x                  | x                  | x                | x        |        | Grows best in groups or as part of woodland planting. Don't use widely for hedging as prefers shaded conditions.         |
| <i>Crataegus monogyna</i>   | Common hawthorn |                 | x     | x     | x                 |                       |              |           | x               | x                    | x                   | x                 |                   | x                  | x                  | x                | x        |        | Ideal barrier hedge. Can be managed into a hedge or allowed to become large shrub or small tree                          |
| <i>Cytisus scoparius</i>    | Broom           | x               | x     |       |                   | x                     |              | x         | x               | x                    |                     | x                 |                   |                    | x                  |                  |          |        | Good shrub for mixed planting schemes but prefers sandy and acid soils.  |
| <i>Erica/Calluna</i>        | Heather         | x               | x     |       |                   | x                     | x            | x         | x               | x                    | x                   |                   |                   |                    | x                  |                  |          |        | Good, easy maintenance ground cover but needs acid soil conditions below pH 6.5 to thrive.                               |
| <i>Frangula alnus</i>       | Alder buckthorn |                 | x     | x     |                   |                       | x            |           | x               | x                    | x                   | x                 |                   |                    | x                  | x                |          |        | Native throughout Britain preferring moist, often acid soils   |
| <i>Hippophaë rhamnoides</i> | Sea buckthorn   |                 | x     | x     |                   | x                     |              |           | x               | x                    | x                   |                   |                   | x                  |                    | x                | x        |        | Resistant to salt growing well in maritime conditions. Only use in coastal situations or on sandy areas. Suckers freely. |

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|                            |             |   |   |   |   |   |   |   |   |   |   |   |   |  |  |   |   |  |
|----------------------------|-------------|---|---|---|---|---|---|---|---|---|---|---|---|--|--|---|---|--|
| <i>Juniperus communis</i>  | Juniper     |   | x |   |   | x | x | x | x | x | x |   |   |  |  | x |   | Grows on chalk or acid mountainous soils. Not for widespread planting but useful in limited circumstances.   |
| <i>Ligustrum vulgare</i>   | Wild privet | x | x |   |   | x | x |   | x | x |   |   |   |  |  |   | x | Good hedging but partially deciduous so loses leaves during winter, reducing value of cover. Prefers chalky soil.  |
| <i>Malus sylvestris</i>    | Crab Apple  |   |   |   | x |   |   |   | x | x | x | x | x |  |  |   |   | Grows well, planted in hedges or scrub. Produces flowers and fruit suitable for bees and birds   |
| <i>Prunus padus</i>        | Bird cherry |   |   |   | x |   |   |   |   | x | x | x |   |  |  |   |   | A suckering shrub growing well on wet acid soils. Very hardy but not tolerant of strong winds. Does not grow well in shade, so use as part of hedgerow or scrub planting |
| <i>Prunus spinosa</i>      | Blackthorn  |   | x | x |   | x |   |   | x | x | x | x | x |  |  |   |   | Ideal barrier hedge. Suckers profusely. Can stand exposure to wind and coastal conditions.   |
| <i>Pyrus communis</i>      | Wild pear   |   |   |   | x |   |   |   |   | x |   |   |   |  |  |   |   | Grows well in open conditions such as hedge planting, but doesn't thrive if planted in woodland conditions   |
| <i>Rhamnus catharticus</i> | Buckthorn   |   | x | x |   |   |   |   | x | x | x |   |   |  |  |   |   | Ideal barrier hedge. Prefers chalky soils and grows best in England, only occurring occasionally as a native in Wales and not recorded in Scotland.                      |
| <i>Rosa arvensis</i>       | Field rose  | x | x | x |   | x |   |   | x | x | x | x | x |  |  |   |   | Thorny and grows well as part of hedge/ shrub mix  |
| <i>Rosa canina</i>         | Dog rose    | x | X | x |   | x |   |   | x | x | x | x | x |  |  |   |   | Thorny and grows well as part of hedge/ shrub mix  |
| <i>Rubus fruticosus</i>    | Bramble     | x | X |   |   |   |   |   | x | x | x | x | x |  |  |   |   | Thorny and grows well as part of hedge/ shrub mix  |

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|                         |                |   |   |   |   |   |  |   |   |   |   |   |   |   |   |   |   |   |  |
|-------------------------|----------------|---|---|---|---|---|--|---|---|---|---|---|---|---|---|---|---|---|--|
| <i>Ruscus aculeatus</i> | Butchers Broom | x | x |   |   | x |  | x | x | x |   | x | x |   |   | x | x | x | A small evergreen shrub – usually less than 1m. Spiny and tough so good as part of hedge/shrub mix.                                  |
| <i>Sambucus nigra</i>   | Elder          |   | x | x |   |   |  |   | x | x | x | x |   | x | x | x |   |   | Vigorous growing large shrub which grows well as part of hedge/ shrub mix  |
| <i>Sorbus aria</i>      | Whitebeam      |   |   |   | x | x |  |   | x | x |   | x | x | x |   |   |   |   | Large shrub or small tree, which prefers lime rich soils. Good in open sunny positions so ideal for hedges or as free standing trees |
| <i>Ulex europea</i>     | Gorse          | x | x |   |   |   |  | x | x | x | x | x | x |   |   | x | x |   | Extremely spiny so good hedging. However gorse is extremely combustible, so large areas present serious fire hazards.                |
| <i>Viburnum lantana</i> | Wayfaring tree |   | x | x |   | x |  |   | x | x |   | x |   | x | x |   |   |   | Good hedging plant on lime rich soils.   |
| <i>Viburnum opulus</i>  | Guelder Rose   |   | x | x |   | x |  |   | x | x | x | x | x | x | x |   |   |   | Good hedging plant on moist, rich soils.   |

### 3 Possible species for planting >10m from the outside rail

| Scientific name         | Common name  | Vegetation type |       |       |                   |                   | Safety considerations |              |           |                 |                      | Conservation factor |                   |                   | Visual impact      |                    |                  | Comments   |
|-------------------------|--------------|-----------------|-------|-------|-------------------|-------------------|-----------------------|--------------|-----------|-----------------|----------------------|---------------------|-------------------|-------------------|--------------------|--------------------|------------------|--|
|                         |              | Ground cover    | Shrub | Hedge | Small tree (<10m) | Large tree (>10m) | Stable root systems   | Slow growing | Evergreen | Light leaf-fall | Non-brittle branches | High bird value     | High insect value | High mammal value | Attractive foliage | Attractive blossom | Attractive fruit |  |
| <i>Acer campestre</i>   | Field maple  |                 |       |       |                   | x                 | x                     |              |           |                 | x                    | x                   | x                 | x                 |                    |                    |                  | Native replacement for sycamore, slower growing and smaller. Usually reached 15m but can make 20m.   |
| <i>Alnus glutinosa</i>  | Alder        |                 |       |       |                   | x                 |                       |              |           |                 | x                    | x                   |                   |                   |                    |                    |                  | High conservation value, nitrogen fixing, good for reclamation work. Can make 30m in ideal conditions but usually reaches 15m. Grows well where water table is high eg streambanks and marshy land. Can stand long periods of roots being submerged. |
| <i>Betula pendula</i>   | Silver birch |                 |       |       |                   | x                 |                       |              |           |                 | x                    | x                   |                   | x                 |                    |                    |                  | Can reach 25m tall in ideal conditions and can be unstable when older, prolific regeneration   |
| <i>Betula pubescens</i> | Downy birch  |                 |       |       |                   | x                 |                       |              |           |                 |                      | x                   | x                 | x                 |                    |                    |                  | Can reach 25m tall in ideal conditions and can be unstable when older. Prolific regeneration   |
| <i>Carpinus betulus</i> | Hornbeam     |                 |       | x     |                   | x                 | x                     |              |           |                 | x                    |                     |                   |                   |                    |                    |                  | Slow growing large tree with grey fluted bark. Prefers damp clay soils but can grow on many soil types. Coppices and pollards well. If cut as hedging will retain leaves throughout the winter.  |
| <i>Fagus sylvatica</i>  | Beech        |                 |       | x     |                   | x                 |                       |              |           |                 |                      |                     |                   | x                 |                    |                    |                  | Shallow rooted and susceptible to storm damage, potential hedging species if managed through regular cutting   |

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|                          |                   |  |  |  |   |  |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
|--------------------------|-------------------|--|--|--|---|--|---|---|---|---|---|---|---|---|---|---|---|---|---|--|
| <i>Ilex aquifolium</i>   | Holly             |  |  |  | x |  | x |   |   | x | x | x | x | x | x | x | x | x | x | <p>Ideal barrier hedge but can be slow growing. Can make 23m in ideal conditions, so should be managed as hedgerow</p>   |
| <i>Pinus sylvestris</i>  | Scots pine        |  |  |  |   |  | x |   |   | x | x |   |   |   |   |   |   |   |   | <p>Grows well on acid soils. Can make 35m tall in ideal conditions.</p>  |
| <i>Populus tremula</i>   | Aspen             |  |  |  |   |  | x | x |   |   |   |   | x |   |   |   |   |   |   | <p>Can make 20m in height in ideal conditions. Grows well from root suckers, producing small thickets. Not long lived (30 to 50 years).</p>                                      |
| <i>Prunus avium</i>      | Wild cherry       |  |  |  |   |  | x |   |   |   |   |   | x | x | x |   |   | x | x | <p>Can make 25m in ideal conditions. Doesn't grow well in shade so best used in hedges or as individual trees.</p>   |
| <i>Quercus petraea</i>   | Sessile oak       |  |  |  |   |  | x | x | x |   |   |   |   | x | x | x |   |   |   | <p>Can make large tree – up to 40m in ideal conditions. Long lived, slow growing and tolerant of strong winds.</p>   |
| <i>Quercus robur</i>     | Common oak        |  |  |  |   |  | x | x | x |   |   |   |   | x | x | x |   |   |   | <p>Can make large tree – up to 40m in ideal conditions. Long lived, slow growing and tolerant of strong winds.</p>   |
| <i>Sorbus aucuparia</i>  | Rowan             |  |  |  |   |  | x | x |   |   |   |   | x | x | x | x | x | x | x | <p>Generally small deciduous tree but can on occasions reach 15m. Grows well on a range of soils and copes well with acid conditions. Quite fast growing and can be coppiced</p> |
| <i>Sorbus torminalis</i> | Wild service tree |  |  |  |   |  | x |   |   |   |   |   | x | x | x | x | x | x | x | <p>Generally small tree but can reach 15m. Grows best on clay soils and prefers open situations. Regenerates well after coppicing.</p>   |
| <i>Taxus baccata</i>     | Yew               |  |  |  |   |  | x |   |   |   |   |   | x | x | x | x |   |   |   | <p>Slow growing but can become mature tree which reaches heights of 20m</p>  |
| <i>Ulmus glabra</i>      | Wych elm          |  |  |  |   |  | x |   |   |   |   |   | x |   | x |   |   |   |   | <p>Can make large tree – up to 40m in ideal conditions. Prefers deep or heavy moist soils.</p>   |



#### 4 Species that should NOT be planted

| Scientific name                              | Common name       | Vegetation type |       |       |                   |                   | Safety considerations |              |           |                 |                      | Conservation factor |                   |                   | Visual impact      |                    |                  | Comments  |
|--|-------------------|-----------------|-------|-------|-------------------|-------------------|-----------------------|--------------|-----------|-----------------|----------------------|---------------------|-------------------|-------------------|--------------------|--------------------|------------------|---|
|  |                   | Ground cover    | Shrub | Hedge | Small tree (<10m) | Large tree (>10m) | Stable root systems   | Slow growing | Evergreen | Light leaf-fall | Non-brittle branches | High bird value     | High insect value | High mammal value | Attractive foliage | Attractive blossom | Attractive fruit |   |
| <i>Acer pseudoplatanus</i>                   | Sycamore          |                 |       |       |                   | x                 |                       |              |           |                 |                      |                     |                   |                   |                    |                    |                  | Leaf-fall problem species, invasive, vigorous growth, prolific regeneration   |
| <i>Aesculus hippocastanum</i>                | Horse chestnut    |                 |       |       |                   | x                 |                       |              |           |                 |                      | x                   | x                 |                   | x                  | x                  |                  | Leaf-fall problem species, potential trespass issues to obtain conkers  |
| <i>Castanea sativa</i>                       | Sweet chestnut    |                 |       |       |                   | x                 | x                     |              |           |                 |                      |                     | x                 |                   |                    | x                  |                  | Leaf-fall problem species, profitable timber crop - especially coppice  |
| <i>Fraxinus excelsior</i>                    | Ash               |                 |       |       |                   | x                 |                       |              |           |                 |                      |                     |                   |                   |                    |                    |                  | Leaf-fall problem species, vigorous growth, prolific regeneration. Suffering from Ash Dieback which will cause tree death and result in tree failures |
| <i>Populus nigra</i> var. <i>betulifolia</i> | Black poplar      |                 |       |       |                   | x                 |                       |              |           |                 |                      |                     |                   |                   |                    |                    |                  | Leaf-fall problem species, can be unstable  |
| <i>Populus nigra</i> var. <i>italica</i>     | Lombardy poplar   |                 |       |       |                   | x                 |                       |              |           |                 |                      |                     |                   |                   |                    |                    |                  | Leaf-fall problem species, can be unstable  |
| <i>Tilia cordata</i>                         | Small-leaved lime |                 |       |       |                   | x                 |                       |              |           |                 |                      | x                   |                   |                   |                    |                    |                  | Leaf-fall problem species   |
| <i>Tilia platyphyllos</i>                    | Large-leaved lime |                 |       |       |                   | x                 |                       |              |           |                 |                      | x                   |                   |                   |                    |                    |                  | Leaf-fall problem species   |
| <i>Tilia x europea</i>                       | Common lime       |                 |       |       |                   | x                 |                       |              |           |                 |                      | x                   |                   |                   |                    |                    |                  | Leaf-fall problem species   |

## 5 Notes

### 5.1 Planting locally native species

- 5.1.1 There are a number of plant species that are suitable for planting >5m and >10m from the outside rail. All of these species are suitable for planting along the lineside and are native to the UK.
- 5.1.2 However, it is possible to choose from the various species available, those species that are native to the area you are planting. This adds further value to the planting, directly contributing to local native species conservation in Britain.
- 5.1.3 Native plants in Britain are those that were already present before the formation of the English Channel.
- 5.1.4 'Introduced' species or 'aliens' originate from places other than Britain and have usually been transported here by humans.
- 5.1.5 A species can be native to the UK, but not native to an area. Locally native plants could be described as the backbone of local ecology. Insects, birds and other animals cannot survive without the food and shelter they provide.
- 5.1.6 In contrast, introduced plants usually offer little to our native wildlife.
- 5.1.7 This is strikingly illustrated by examining native trees, such as oak or hawthorn, and aliens like horse chestnut and 'London' plane. Few insects or other invertebrates will be found on the foreign species and its leaves will be virtually untouched, whereas by comparison a native tree harbours innumerable invertebrates.

### 5.2 Planting species not listed

- 5.2.1 Species not included in this list maybe used, but only following consultation with Network Rail's Route Asset Management team.

### 5.3 2015 Tree Council update

- 5.3.1 This latest update to the recommended species planting list has been carried out by The Tree Council ([www.treecouncil.org.uk](http://www.treecouncil.org.uk))

