

# TREE SPECIES SELECTION REPORT

2023



# Association of Tree Officers Tree Species Selection report 2023

In association with the London Tree Officers Association

## Contents

1. Introduction.....	2
2. Summary.....	3
3. Survey results.....	6
4. Conclusion.....	25

This report has been produced by the London Tree Officers Association (LTOA) Tree Planting Working Party, working jointly for the Association of Tree Officers (ATO). The working party was chaired by Katerina Hadincova and James Robinson-Tillett, consisting of LTOA members who work for Barcham, Bartlett Tree Experts, Kew Gardens, and Local Authorities.

# 1. Introduction

The Tree Planting Working Party formed in 2020 with the aim of informing best practice and to encourage high-quality planting across the UK.

In the United Kingdom, a revolution in how people see, use, and develop the landscape is well underway. Since 2019, formal declarations recognising the 'Climate Emergency' have been made by most authorities from Scarborough to Torbay. This widespread acknowledgment of the effects of climate change has increased consideration of the natural world and is supported by various academic and political reports highlighting the role trees play in addressing various climate-related issues. With this enhanced ecological focus, trees are at the forefront of political vision demonstrated by the ever-increasing tree planting targets for Local Authorities, and there has been a noticeable increase in public interest in trees and their protection. The Tree Planting Working Party is exploring the effects of this change in response to trees, how implementation of planting targets will take place, and what information may still be needed.

The working party set up a sub-committee which focussed on refining planting palettes with the aim of producing a basic guide on urban tree species selection for those who manage trees. It is hoped that this will contribute to promoting sustainable and thriving urban landscapes for generations to come.

Considering that current practices for species selection are significant to our future landscapes, the working party's first step was to understand what local authority trends are at present. It sought to identify the most 'popular' tree species selected for urban planting by arboriculturists across the UK and released a survey in 2022 which was circulated to members of the ATO and the LTOA.

This report presents the findings of this survey, both of which are the results of a collaborative effort from the members of the Tree Planting Working Party.

## 2. Summary

The most frequently mentioned tree species and genera are mentioned below under sub-headings referencing each of the six questions in the survey.

- **Large (16m and over) tree species**

The responses showed the top five most frequently mentioned tree species, in descending order, are:

- *Platanus x hispanica*
- *Carpinus betulus*
- *Liquidambar styraciflua*
- *Pyrus calleryana* 'Chanticleer'
- *Tilia cordata*

When categorised by genus, the top four most frequently mentioned, in descending order with two genera holding the same number of mentions at position three, are:

- *Tilia*
- *Platanus*
- *Acer; Carpinus*
- *Liquidambar*

- **Medium (8m - 15m) tree species**

The responses showed the top three most frequently mentioned tree species, in descending order with multiple tree species in third place with the same number of selections, are:

- *Acer campestre*
- *Sorbus aucuparia*
- *Betula utilis; Gleditsia triacanthos; Koelreuteria paniculata; Magnolia Kobus; Prunus avium; Prunus* 'Sunset Boulevard'

When categorised by genus, the top five most frequently mentioned, in descending order, are:

- *Acer*
- *Prunus*
- *Sorbus*
- *Magnolia*
- *Betula*

- **Small (up to 7m) tree species**

The responses showed the top three most frequently mentioned tree species, in descending order with two species in second place with the same number of selections, are:

- *Amelanchier arborea*
- *Crataegus laevigata* 'Paul's Scarlet'; *Crataegus monogyna*
- *Prunus* 'Umineko'

When categorised by genus, the top four most frequently mentioned, in descending order with two genera occupying fourth place with the same number of mentions, are:

- *Crataegus*
- *Amelanchier*
- *Malus*
- *Cercis*; *Parrotia*

- **Tree species to plant to tackle climate change, air pollution or urban heat island (UHI) effects**

The responses showed the top three most frequently mentioned tree species, in descending order with three species in third place with the same number of selections, are:

- *Platanus x hispanica*
- *Celtis australis*
- *Acer campestre*; *Ginkgo biloba*; *Tilia cordata*

When categorised by genus, the top four most frequently mentioned, in descending order with two genera occupying third place with the same number of mentions, are:

- *Platanus*
- *Acer*
- *Celtis*; *Tilia*
- *Magnolia*

- **Tree species to plant in high-risk subsidence areas/cases**

The responses showed the top three most frequently mentioned tree species, in descending order with two species in third place with the same number of selections, are:

- *Lagerstroemia indica*
- *Amelanchier arborea*
- *Ligustrum japonicum*; *Liquidambar styraciflua*

When categorised by genus, the top three most frequently mentioned, in descending order with two genera occupying third place with the same number of mentions, are:

- *Amelanchier*
- *Lagerstroemia*
- *Magnolia; Sorbus*

- **Tree species respondents would consider for future planting**

The responses showed the top four most frequently mentioned tree species, in descending order with two species in third place with the same number of selections, are:

- *Celtis australis*
- *Ginkgo biloba*
- *Gleditsia triacanthos; Hippophae salicifolia*
- *Pinus sylvestris*

When categorised by genus, the top three most frequently mentioned, in descending order with two genera occupying second and third place with the same number of mentions, are:

- *Celtis*
- *Ginkgo; Pinus*
- *Gleditsia; Hippophae*

### 3. Survey results

The survey contained one over-arching question, with six sub-questions intending to capture the respondent's choice of tree species when planting trees in urban environments. These urban environments are not limited to the highway and are understood to be within or above hardstanding but not within parks etc. Each sub-question allowed up to five free-text responses.

The survey was given to members of the LTOA and ATO and 24 responses were received.

The results show that specification had been needed to guide the respondents on the ultimate height of species specified in some of the questions. For example, where the survey asked for 'Large', 'Medium' or 'Small', it was clear from the results that the respondents categorised the same species differently. If the opportunity to release a similar survey occurs, then an appendix showing the height categories of a selection of tree species will be considered or alternatively providing a drop-down list of options to select from.

To account for the inconsistency of tree height categories in the responses, the results were re-organised into linear categories i.e., "no submitted tree species could coexist in two of the size categories or more". For example: *Alnus glutinosa* could not be in both the 'Large' and 'Medium' categories. The greater height category was always used if trusted sources were available. A tree for example, that would commonly reach 14-16m, would be considered a 'Large (16m+)', not 'Medium (8-15m)'.

## Question 1

**What are your top large (16m and over) tree species to plant which, in your experience, consistently perform well under highway planting and growing conditions?**

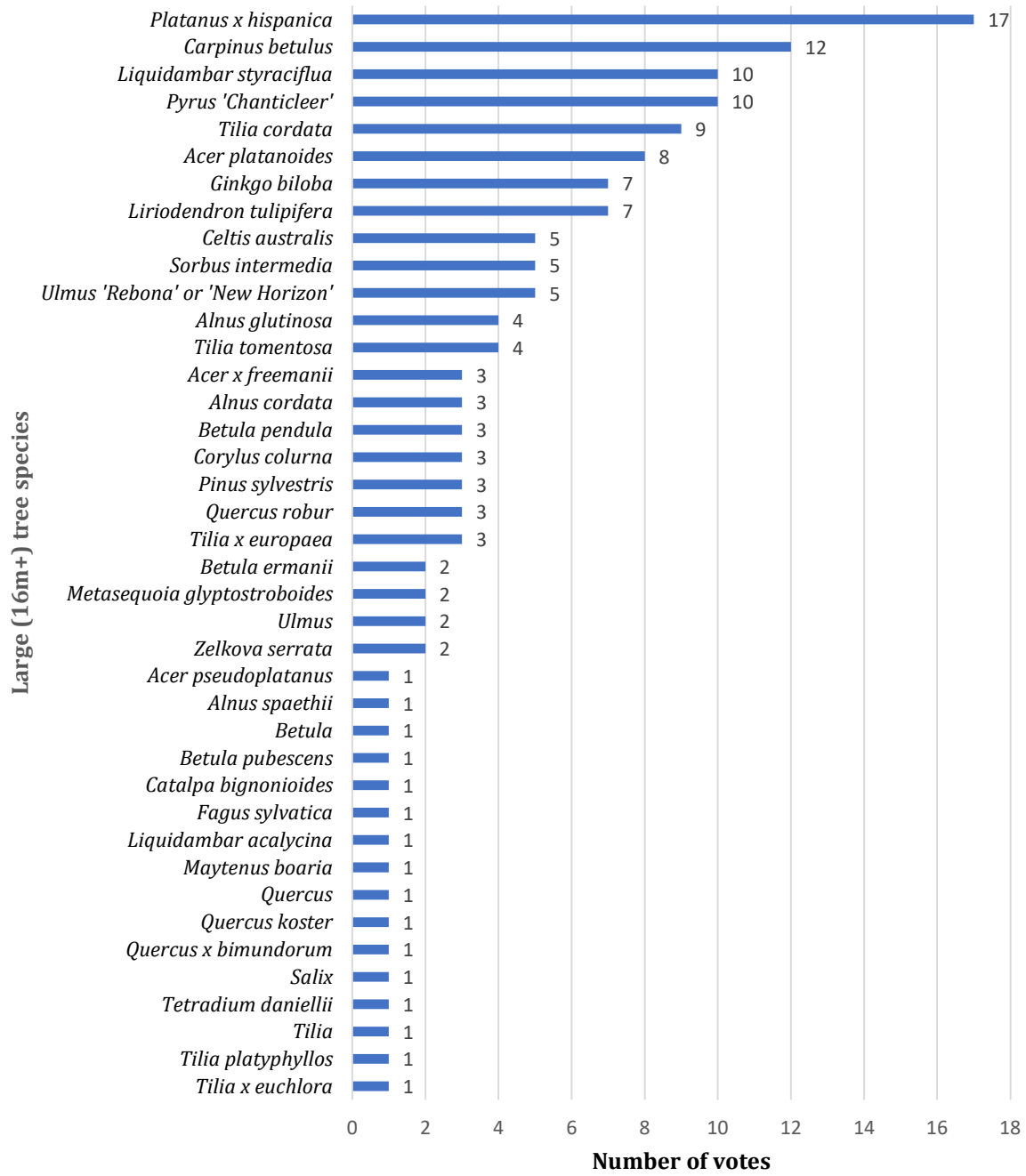
After re-categorisation of the tree species into the correct height categories, 148 large tree species were given by the respondents across questions 1, 2, and 3. The responses show that a relatively wide range of large tree species are planted with *Platanus x hispanica* being the most popular choice with 19 mentions, followed by *Carpinus betulus* (12), *Liquidambar styraciflua* (10), *Pyrus calleryana* 'Chanticleer' (10), and *Tilia cordata* (9) (Figure 1).

No cultivars of London Plane were mentioned. Of the 12 votes for *Carpinus betulus*, two of these were the 'Franz fontaine' cultivar and 1 was specified as 'fastigiata'. Of the 11 *Liquidambar styraciflua* votes, 4 were identified as the 'Worplesdon' cultivar, and 1 was the 'Lane Roberts' cultivar. Of the 9 *Tilia cordata* species mentioned, 5 were the 'Greenspire' cultivar, 1 was the 'Streetwise' cultivar, and 1 was a *Tilia cordata* x *Tilia mongolica* 'Harvest Gold' cultivar.

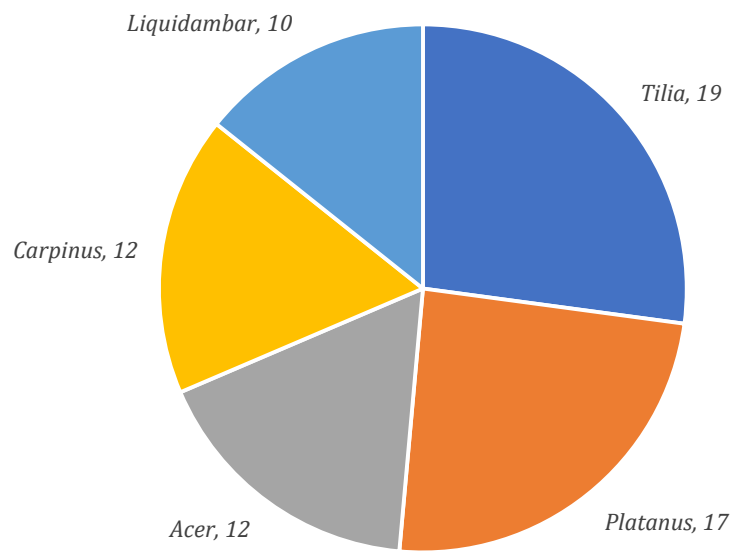
Species of the *Tilia* (19) and *Platanus* (17) genera were the most common genus selections, followed by *Acer* and *Carpinus*, both with 12 votes, and *Liquidambar* with 11 (Figure 2).







**Figure 1** Bar graph depicting the number of votes for large (over 16m) tree species selected by survey respondents.



**Figure 2** Pie chart depicting the top 5 genera of large (16m+) tree species selected by respondents.



## Question 2

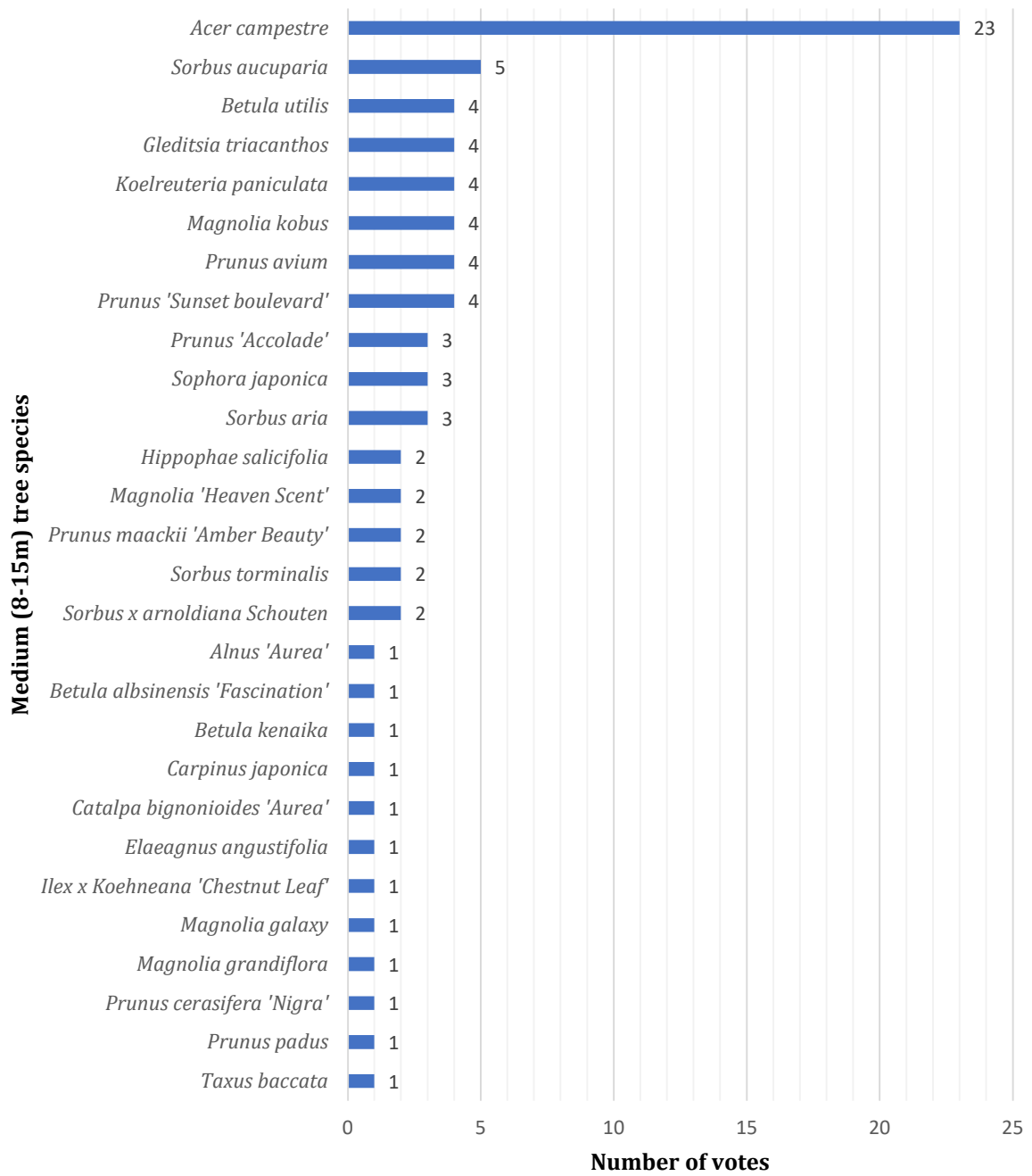
**What are your top medium (8m - 15m) tree species to plant which, in your experience, consistently perform well under highway planting and growing conditions?**

After re-categorisation of the tree species into the correct height categories, 89 medium tree species were given by the respondents across questions 1, 2, and 3. The responses show strong preference for *Acer campestre* with a total of 23 votes. This is followed by *Sorbus aucuparia* with 5 votes, and *Betula utilis*, *Gleditsia triacanthos*, *Koelreuteria paniculata*, *Magnolia Kobus*, *Prunus avium*, *Prunus* 'Sunset Boulevard' all with 4 votes (Figure 3).

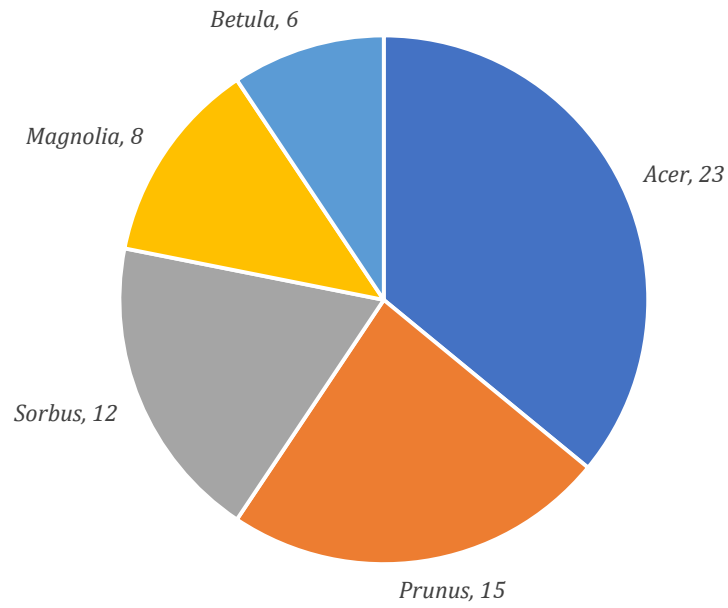
Of the 23 votes for *Acer campestre*, various cultivars including 'Elsrijk' (4), 'Arends' (4), 'Elegant' (2), 'Lienco' (2), 'Louisa Redshine' (1), 'Streetwise' (1) were specified. Of the 5 *Sorbus aucuparia* votes, a 'Sheerwater Seedling' cultivar and a 'Cardinal Royal' cultivar were specified. 3 of the 4 *Betula utilis* were specified as the 'Jacquemontii' cultivar.

Species of the *Acer* (23), *Prunus* (15), and *Sorbus* (12) genera were most commonly selected, followed by species in the *Magnolia* (8) and *Betula* (8) genera (Figure 4).





**Figure 3** Bar chart depicting the number of votes for medium (8-15m) tree species selected by survey respondents.



**Figure 4** Pie chart depicting the top 5 genera of medium (8-15m) tree species selected by respondents.



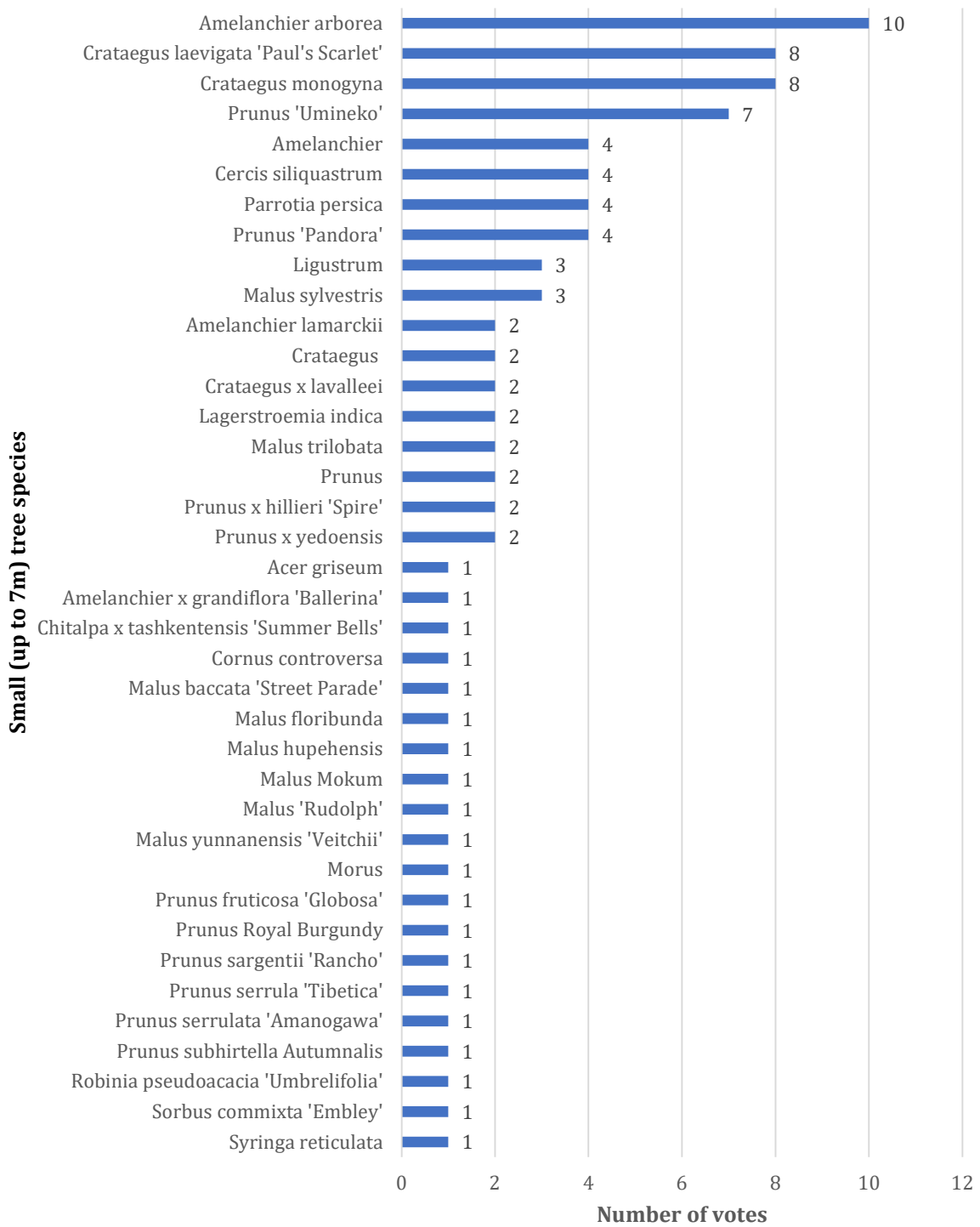
### Question 3

**What are your top small (up to 7m) tree species to plant which, in your experience, consistently perform well under highway planting and growing conditions?**

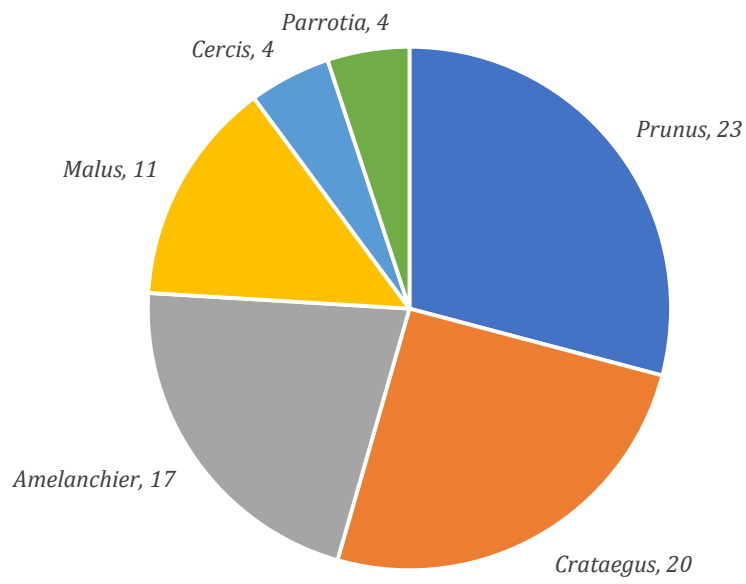
After re-categorisation of the tree species into the correct height categories, 91 small tree species were given by the respondents across questions 1, 2, and 3. *Amelanchier arborea* was the most popular species selected by respondents with 10 votes, followed by *Crataegus laevigata* 'Paul's Scarlet' and *Crataegus monogyna* with 8 votes each. *Prunus* 'Umineko' was the third most popular small species with 7 votes (Figure 5).

With all tree species categorised by genus, the responses showed that species of the *Prunus* genera were most commonly selected with 23 votes, followed by species in the *Crataegus* (20), *Amelanchier* (17), *Malus* (11), *Cercis* (4), and *Parrotia* (4) genera (Figure 6).





**Figure 5** Bar chart depicting number of votes for small (up to 7m) tree species selected by survey respondents.



**Figure 6** Pie chart depicting number of votes for genera of small (up to 7m) tree species selected by respondents.





## Question 4

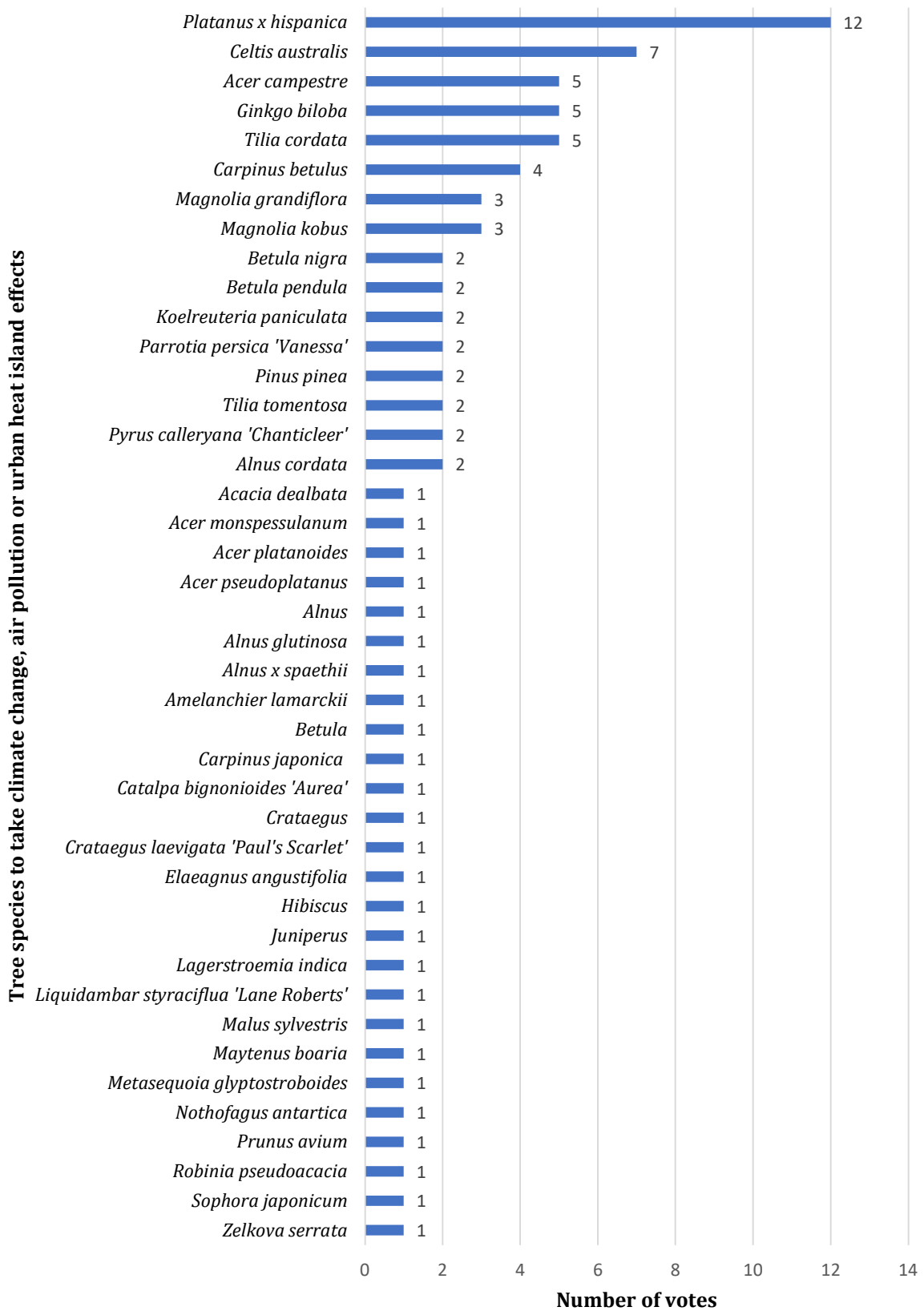
**What are your top tree species to plant to tackle climate change, air pollution or urban heat island (UHI) effects which, in your experience, consistently perform well under highway planting and growing conditions?**

The most popular tree species selected by respondents to tackle climate change was *Platanus x hispanica* with 12 votes. This was followed by *Celtis australis* 7 with votes, and *Acer campestre*, *Ginkgo biloba*, *Tilia cordata* with 5 votes each (Figure 7).

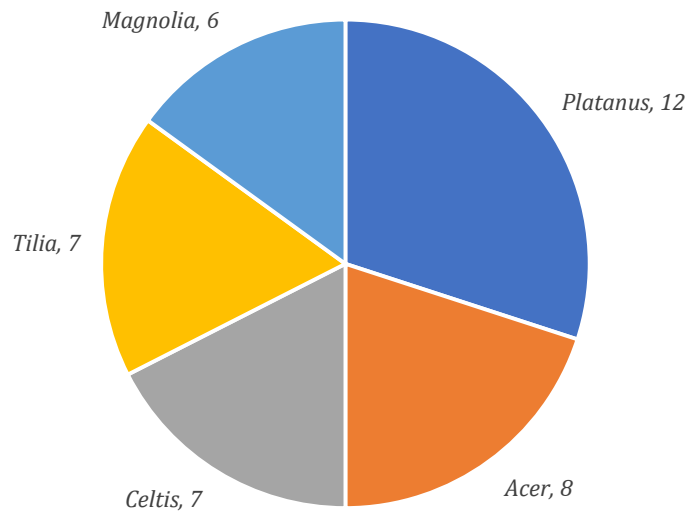
These results are reflected in the top 5 genera which were *Platanus* (12), *Acer* (8), *Celtis* (7), *Tilia* (7), and *Magnolia* (6) (Figure 8).

The question is phrased in such a way that any aspect of climate change could be considered which gives an opportunity for a future survey to attempt to capture the reasons for the respondents' selections. For example, selecting *Ginkgo biloba* to tolerate hot and dry conditions, or selecting *Alnus glutinosa* to tolerate waterlogged conditions.





**Figure 7** Bar chart depicting number of votes for tree species selected by survey respondents to tackle climate change, air pollution, or urban heat island effects.



**Figure 8** Pie chart depicting number of votes for tree species selected by survey respondents to tackle climate change, air pollution, or urban heat island effects.



## Question 5

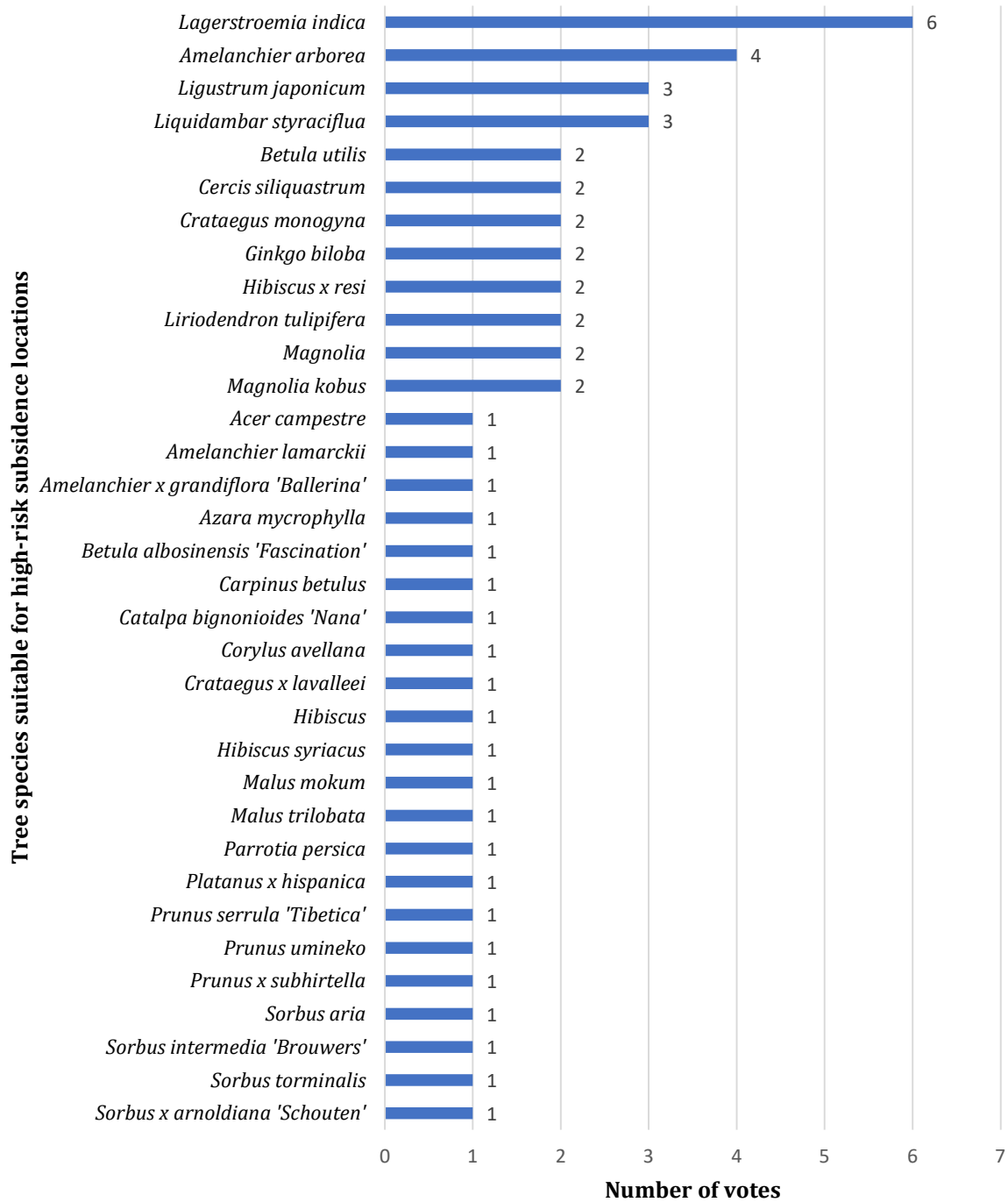
**What are your top tree species to plant in high-risk subsidence areas/cases which, in your experience, consistently perform well under highway planting and growing conditions?**

There was less variation in the number of votes for each tree species selected in response to this question compared to the other questions.

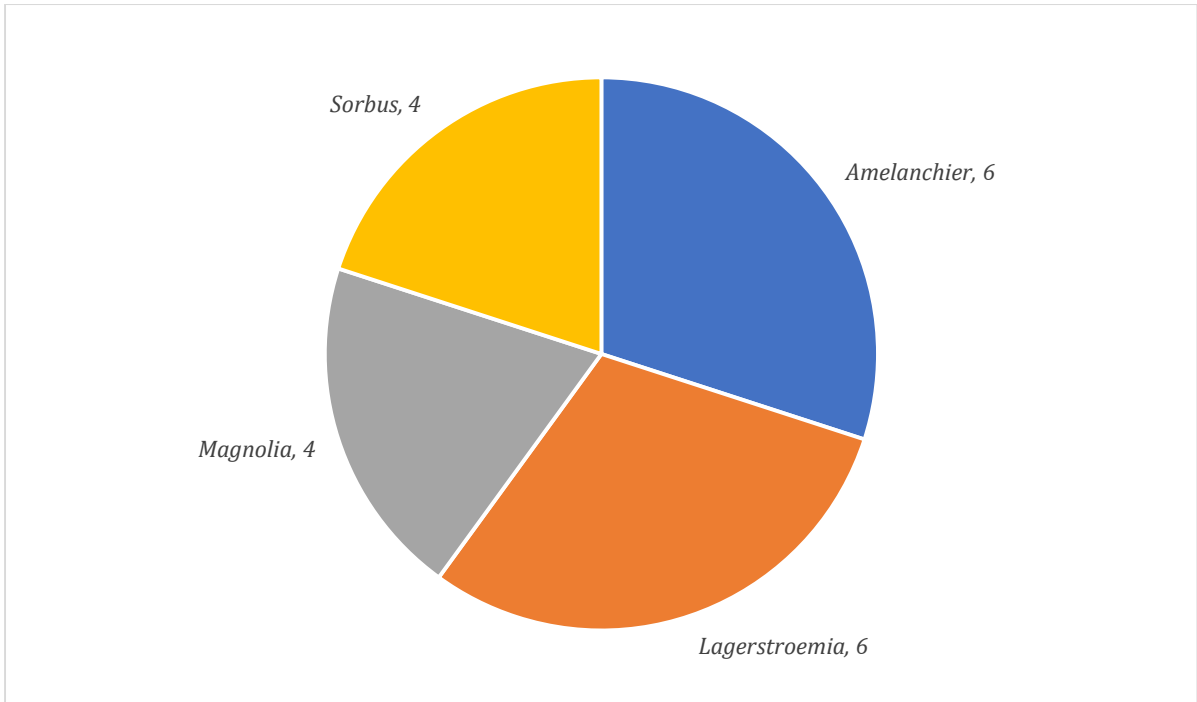
The most popular tree species selected by respondents to plant in high-risk subsidence locations was *Lagerstroemia indica* with 6 votes, followed by *Amelanchier arborea* with 4 votes, and *Ligustrum japonicum* and *Liquidambar styraciflua* with 3 votes each (Figure 9).

When categorising by genera, the top results reflect a similar preference for species from the *Amelanchier* (6), *Lagerstroemia* (6), *Magnolia* (4) and *Sorbus* (4) (Figure 10).





**Figure 9** Bar chart depicting number of votes for tree species selected by survey respondents to plant in high-risk subsidence areas/cases.



**Figure 10** Pie chart depicting number of votes for tree species selected by survey respondents to plant in high-risk subsidence areas/cases.



## Question 6

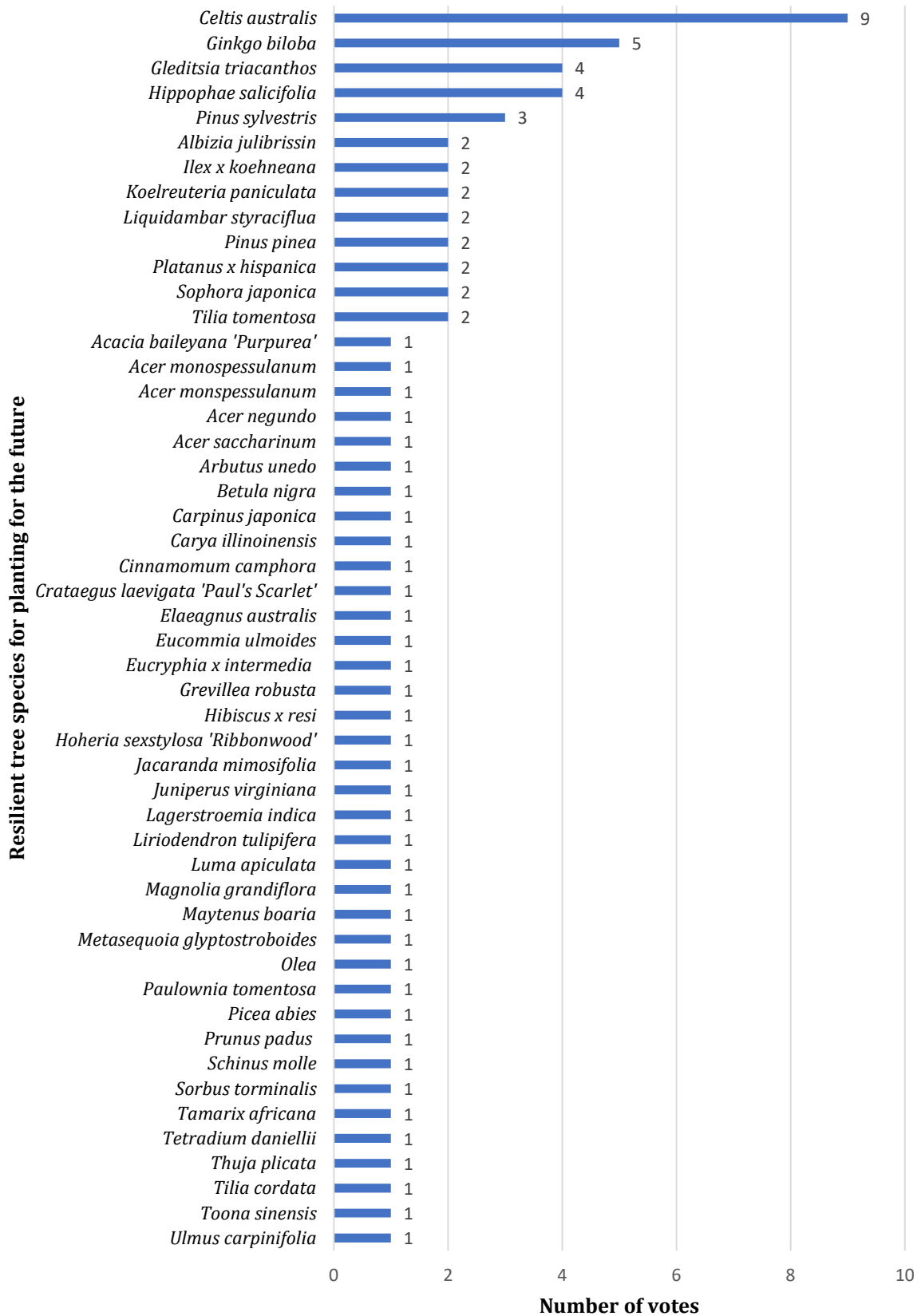
**What are the top tree species you would consider for future planting (these may not be planted at the moment or only planted in small numbers) which, in your experience, consistently perform well under highway planting and growing conditions?**

Unsurprisingly, the responses to this question show a few individual votes for less common tree species which did not appear in the responses to the other questions, such as *Cinnamomum camphora*, *Schinus mole*, *Tamarix africana*.

Similarly to question 5, there was less variation in the number of votes for each tree species selected by the respondents. The most popular species were *Celtis australis* (9), *Ginkgo biloba* (5), *Gleditsia triacanthos* (4), *Hippophae salicifolia* (4), and *Pinus sylvestris* (3) (Figure 11).

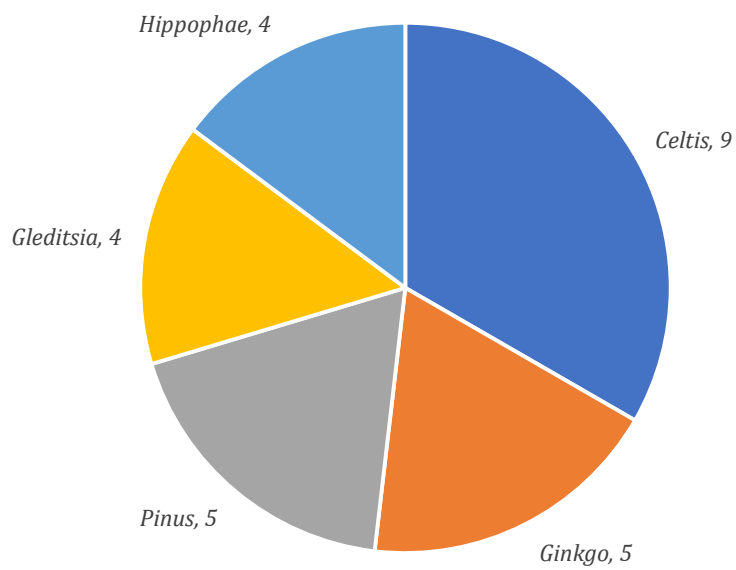
These results are reflected in the genus categories where the only difference is that *Pinus* comes in as third most popular (Figure 12).





**Figure 11** Bar chart depicting number of votes for tree species selected by survey respondents to consider in future planting.





**Figure 12** Pie chart depicting number of votes for tree species selected by survey respondents to consider in future planting.



## 4. CONCLUSION

The results show that the species selected by the survey respondents vary considerably, demonstrated by the most frequently mentioned species across all six questions spanning over 20 different genera.

Certain species were commonly preferred, particularly when selecting medium tree species where *Acer campestre* was mentioned nearly five times more frequently than the second most popular species.

The majority of tree species mentioned in the responses are non-native tree species, most likely reflecting tree officers' considerations for selecting species with visual amenity, and those tolerant of urban growing conditions. Given the growing interest in ensuring the resilience of urban tree populations achieved through planting a greater variety of tree species, the results suggest that whilst there is a variety of tree species being selected, the frequency at which they are selected would provide greater variety in the urban tree population.

