

Urban tree survey: tree identification key

**Identification keys are used to identify specimens.
This key is made up of a master key and 7 other keys.**

How to use this key

- start at step 1 in the master key
- compare your specimens to the statements at each step
- keep following the instructions until you reach the name of a tree

You can also check your identifications with the interactive tree key on the Natural History Museum website:
www.nhm.ac.uk/urban-tree-survey

Contents of this key

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Master key: types of tree found in gardens and urban areas

Master key – step 1



Leaves needle-like or scale-like and often overlapping



go to key 1
(page 3)



Leaves not needle-like, scale-like or overlapping



go to step 2

Master key – step 2



Leaves in pairs, opposite each other on shoots



go to key 2
(page 7)



Leaves alternate on shoots



go to step 3

Master key – step 3



Leaves divided into separate leaflets



go to key 3
(page 10)



Leaves with one blade, possibly indented into lobes, but not divided into leaflets



go to step 4

Master key – step 4



Leaves evergreen



go to key 4
(page 12)



Leaves deciduous



go to step 5

Master key – step 5



Fruits fleshy or juicy



go to key 5
(page 15)



Fruits dry



go to key 6
(page 20)

Key 1: trees with leaves that are needle-like or scale-like

Key 1 – step 1



All leaves scale-like, usually pressed against the twig



go to step 2



All leaves needle-like, usually spread widely apart



go to step 6



Some leaves scale-like, others needle-like



go to step 14

Key 1 – step 2



Scale-leaves at least 30mm long, rigid and sharp-edged



Monkey puzzle



Scale-leaves less than 30mm long, not rigid or sharp



go to step 3

Key 1 – step 3



Deciduous tree; foliage is wispy; pink or white flowers



Tamarisks



Evergreen tree with cones; foliage is dense



go to step 4

Key 1 – step 4



Cone is egg-shaped with overlapping scales, eventually wide-spreading like petals of a flower; crushed foliage smells of pineapple



Western red cedar



Cone is egg- or ball-shaped, scales meet at edges and don't overlap, scales don't become wide-spreading; crushed foliage doesn't smell of pineapple



go to step 5

Key 1 – step 5



Cone is egg-shaped with more than 15 scales; bark is very thick, with visible fibres, and is rather soft or spongy



Wellingtonia



Cone is ball-shaped, with fewer than 10 scales; bark is hard



Cypresses

Key 1 – step 6



Needles are in two flat, parallel rows, at least on the short shoots growing off longer ones; fruit is scarlet and berry-like



Yew



All the needles are in clusters or are parted on either side of shoot, but not in flat rows; fruit is a woody cone



go to step 7

Key 1 – step 7



Needles are all on their own at their position on the shoot



go to step 8



Most needles grouped around the shoot, in pairs or bundles of 2 or more



go to step 10

Key 1 – step 8



Cones stand upright on branches; needles are attached by a sucker-like base



Firs



Cones hang downwards from branches; the base of the needles are not sucker-like



go to step 9

Key 1 – step 9



Needles leave behind their peg-like bases after falling



Spruces



Needles leave behind their cushion-like bases after falling



Hemlock spruces

Key 1 – step 10



Most needles are in bundles of 2–5



go to step 11



Most needles are arranged around the shoot in clusters of 3, 10 or more, rarely in pairs



go to step 12

Key 1 – step 11



Needles in bundles of 2



Pines, 2-neededled



Needles in bundles of 3



Pines, 3-neededled



Needles in bundles of 5



Pines, 5-neededled

Key 1 – step 12



Needles on all shoots are arranged in rings of 3 going around the shoot, or occasionally in pairs



Junipers



Needles on short shoots, in clusters of 10 or more



go to step 13

Key 1 – step 13



A deciduous tree; the cones are egg-shaped



Larches



An evergreen tree; the cones are barrel-shaped



Cedars

Key 1 – step 14



Leaves of main shoots are scale-like, leaves of short shoots are needle-like, up to 20mm long, arranged in 2 rows; foliage doesn't smell unpleasant



Coast redwood



Leaves mostly scale-like; those towards the tips of shoots are needle-like, in opposite pairs, 5–6mm long; crushed foliage smells unpleasant



Junipers

Key 2: trees with broad leaves, arranged opposite each other in pairs

Key 2 – step 1



Leaves palmately divided into separate leaflets, the leaflets extending from the leaf stalk



Horse chestnuts



Leaves pinnately divided into separate leaflets, the leaflets in two rows on the stalk



go to step 2



Leaves are sometimes lobed, but are not divided into leaflets



go to step 5

Key 2 – step 2



Small trees with ridged, corky bark; the fruit is a berry



Elder



Tall trees with smooth or slightly wrinkled bark; fruits are dry and wing-shaped



go to step 3

Key 2 – step 3



Twigs are clearly flattened where the buds or leaves are attached; leaves are hairy on the underside; 1 fruit per stalk



go to step 4



Twigs are not flattened where the buds or leaves are attached; leaves are hairless on the underside; fruits in pairs on the stalks



Ashleaf maple

Key 2 – step 4



Flowers have no petals; winter buds are black



Ash



Flowers have narrow white petals; winter buds are grey or brown



Manna ash

Key 2 – step 5



Leaves are deeply palmately lobed; fruits are wing-shaped and in pairs



go to step 9



Leaves are not lobed or are only very shallowly lobed; fruit is either a woody capsule, a berry or a long, narrow pod



go to step 6

Key 2 – step 6



Leaf edges are toothed



Spindles



Leaf edges are not toothed



go to step 7

Key 2 – step 7



An evergreen tree, leaves are usually bluish-green and smell of eucalyptus when crushed; bark is usually shredding or flaking



Eucalyptus



A deciduous tree, leaves are pale or bright green and don't smell when crushed; bark is not shredding



go to step 8

Key 2 – step 8



A tall tree up to 20m; leaves are 10–25cm long; flowers are 5cm or more across; fruit is a long, narrow pod that remains after the leaves fall



Indian bean tree



A small tree to 8m; leaves are 4–10cm long; flowers are 4mm across; fruit is a red berry



Cornelian cherry

key 2 – step 9



Leaves with 3-13 lobes. If 5-lobed, then any teeth present aren't small, coarse, round-tipped and numerous, or flowers/fruits don't hang in tails



**Maples
(other than
sycamore)**



Leaves 5-lobed with many small, coarse, round-tipped teeth; flowers/fruits in hanging tails



Sycamore

Key 3: trees with leaves arranged alternately, divided into separate leaflets

Key 3 – step 1



Leaves divided into 3 leaflets



Laburnums



Leaves divided into more than 3 leaflets



go to step 2

Key 3 – step 2



Twigs are thick and densely covered with velvety hairs; flower heads (and later the seed heads) are dense, cone-shaped and hairy



Stag's horn sumach



Twigs not velvety; flowers and fruits are not in hairy, cone-shaped heads



go to step 3

Key 3 – step 3



Twigs have a pair of thorns at the base of each leaf



False acacia



Twigs have no spines or thorns



go to step 4

Key 3 – step 4



Twigs have distinctive Y-shaped scars where leaves have fallen; cut twigs leak latex; flowers are in catkins or clusters of 1–5



Walnuts



Leaf scars are not Y-shaped; cut twigs don't leak latex; flowers are numerous and in clusters.



go to step 5

Key 3 – step 5



Leaflets are not lobed, they are not foul-smelling; the fruit is a pod



Pagoda tree



Leaflets have a few teeth or lobes in the lower half only and they are foul-smelling when crushed; the fruit is a papery, winged seed



Tree-of-heaven



Leaflets are toothed or lobed, not foul-smelling; the fruit is a papery capsule



Pride-of-India



Leaflets are toothed at least in the upper half and are not foul-smelling; fruit is juicy and berry-like



go to step 6

Key 3 – step 6



Lower part of the leaf is divided into 1–4 pairs of leaflets, the upper part is lobed in places but not completely divided



Service trees



Leaves are completely divided into 6 or more pairs of leaflets



go to step 7

Key 3 – step 7



Ripe fruits are orange-red to vermillion-red or occasionally yellow, with yellow pulp



Rowans with orange or vermillion fruit



Ripe fruits are white to pink or crimson, with white pulp



Rowan with white, pink or crimson fruit

Key 4: evergreen trees with leaves arranged alternately, not divided into leaflets

Key 4 – step 1



Leaves have spiny edges



go to step 2



Leaves sometimes have toothed edges but are not spiny



go to step 3

Key 4 – step 2



Leaves are white- or green-felted on the underside; fruit is an acorn; flowers are green, the male flowers are in slender catkins



Evergreen oak



Leaves are paler but hairless on the underside; fruit is a berry; flowers are white and in small clusters



Hollies

Key 4 – step 3



Leaves are aromatic when crushed



go to step 4



Leaves are not aromatic when crushed



go to step 5

Key 4 – step 4



Leaves smell of eucalyptus when crushed, or rarely of lemon, the edges are flat



Eucalyptus



Leaves smell of almonds when crushed; the edges are rolled under



Cherry laurel



Leaves smell of bay when crushed, the edges are wavy



Bay

Key 4 – step 5



Leaves are densely covered with rusty brown or grey hairs on the underside



go to step 6



Leaves are hairless or have white hairs on the underside



go to step 7

Key 4 – step 6



Flowers are on their own



**Evergreen
magnolias**



Flowers are in clusters



Rhododendrons

Key 4 – step 7



Flowers are roughly 1cm long,
urn-shaped and in small drooping
clusters; the fruit is a warty, matt-red
berry



Strawberry tree



Flowers are 3–5.5cm long, bell-
shaped and in large rounded
clusters; the fruit is a capsule



Rhododendrons



Flowers are 1–1.5cm across and flat,
with up to 100 in erect spikes; the
fruit is a smooth, shiny black berry



Portugal laurel



Flowers are less than 1cm across,
flat and in clusters; the fruit is a red,
orange or blue-black berry



Cotoneasters

Key 5: deciduous trees with leaves arranged alternately, not divided into leaflets; fruits fleshy or juicy

Key 5 – step 1



Leaves are fan-shaped with a central notch



Maidenhair tree



Leaves are not fan-shaped



go to step 2

Key 5 – step 2



At least some leaves are lobed



go to step 3



Leaves are undivided, the edges may be toothed but not lobed



go to step 6

Key 5 – step 3



Leaves are palmately lobed, distinctly bristly to the touch on the upper side



go to step 4



Leaves are pinnately lobed, smooth or softly hairy on the upper side



go to step 5

Key 5 – step 4



Some leaves are lobed and all are toothed; the fruit resembles a raspberry, red or purple when ripe



Mulberry



All leaves are lobed; the fruit is pear-shaped and brownish purple when ripe



Fig

Key 5 – step 5



Twigs are thorny



Hawthorns



Twigs are not thorny



Whitebeams

Key 5 – step 6



Leaves are not toothed



Cotoneasters



Leaves are toothed



go to step 7

Key 5 – step 7



Flowers and fruits are in cylinder- or cone-shaped spikes



go to step 8



Flowers and fruits are on their own, in pairs or in clusters



go to step 9

Key 5 – step 8



Flowers are less than 10mm in diameter, the petals are broadly oval; the fruit is smooth at the apex



Bird cherries



Flowers are more than 10mm in diameter, the petals are narrow and strap-shaped; the fruit is crowned with the withered sepals



Amelanchier

Key 5 – step 9



Flowers have 1 style; sepals are absent on the ripe fruit; 1 seed



go to step 10



Flowers have 2 or more styles; sepals are usually present on the ripe fruit; 2 or more seeds



go to step 14

Key 5 – step 10



Twigs are very thorny



Blackthorn



Twigs are not thorny or have only occasional thorns



go to step 11

Key 5 – step 11



Fruit is less than 2cm long; the bark often has distinctive horizontal bands of pores



go to key 7
(page 25)



Fruit is more than 2cm long; the bark doesn't have horizontal bands of pores



go to step 12

Key 5 – step 12



Fruit has a velvety skin, even when fully ripe



Peach and almond



Fruit has a smooth skin, often with a greyish waxy bloom on the skin



go to step 13

Key 5 – step 13



Young twigs are green, smooth and glossy



Cherry plum



Young twigs are brown or grey, dull and often hairy



Plum

Key 5 – step 14



Flowers and fruits in clusters of 11 or more, with their stalks not arising from a central point



go to step 15



Flowers and fruits in clusters of 10 or fewer, with their stalks all arising from a central point



go to step 16

Key 5 – step 15



Twigs are thorny or spiny, sometimes with very few spines



Cockspur-thorns



Twigs are not thorny



Whitebeams

Key 5 – step 16



Fruit is usually pear-shaped, with gritty flesh; styles are not joined together at the base



Pears



Fruit is usually apple-shaped, the flesh is not gritty; styles are joined together at the base



go to step 17

Key 5 – step 17



Fruits less than 4cm long



Crab apple



Fruits more than 4cm long



Apples

Key 6: deciduous trees with leaves arranged alternately, not divided into leaflets; fruits dry

Key 6 – step 1



Leaves are lobed



go to step 2



Leaves are not lobed



go to step 6

Key 6 – step 2



Leaves are square or notched at the tip; the flowers are up to 5cm long and are on their own



Tulip tree



Leaves are rounded or pointed at the tip; the flowers are much smaller, in clusters or catkins



go to step 3

Key 6 – step 3



Leaves are pinnately lobed; the fruit is an acorn



Oaks



Leaves are palmately or irregularly lobed; the fruits form a catkin or globe-shaped head



go to step 4

Key 6 – step 4



Leaves are felted with white or grey hairs on the underside



White poplar



Leaves are smooth or sparsely hairy on the underside



go to step 5

Key 6 – step 5



Bark is flaking in large patches; the fruits form a soft, hairy ball like a pom-pom



Plane



Bark is fissured, not flaking; the fruits form a stiff, spiky ball like the head of a mace



Sweet-gum

Key 6 – step 6



Bark is silver or white



go to step 7



Bark is greyish or brown



go to step 8

Key 6 – step 7



Tree is weeping, the twigs and smaller branches hang loosely; the bark has black, diamond-shaped splits



Silver birch



Tree is not weeping; the bark is often peeling but doesn't have black diamond-shaped splits



**White or
Himalayan birch**

Key 6 – step 8



Leaves are more than 3 times as long as they are wide



go to step 9



Leaves are less than 3 times as long as they are wide



go to step 11

Key 6 – step 9



Leaf edges are coarsely toothed, the teeth end in a softly spiny tip; the seeds are enclosed in a softly spiny husk



Sweet chestnut



Leaf edges are not indented but may have small, fine teeth; the seeds have a plume of silky hairs at one end



go to step 10

Key 6 – step 10



Tree is weeping, the smaller branches hang downwards, often almost to the ground



Weeping willow



Tree is not weeping



Willows

Key 6 – step 11



Fruit is a small, woody cone, they are numerous and stay on the tree until spring



Alders



Fruit is not a woody cone



go to step 12

Key 6 – step 12



Leaf edges aren't indented



go to step 13



Leaf edges are toothed, the teeth may be very small



go to step 15



Leaves are double-toothed



go to step 16

Key 6 – step 13



Leaves are almost circular; flowers are pea-like and found on the trunk and main branches as well as the twigs



Judas tree



Leaves are oval or egg-shaped; flowers aren't pea-like



go to step 14

Key 6 – step 14



Leaves are flat and 15cm or more in length; the flowers have 5 or more large petals that are white or pink; the fruit is cone-like but not woody



Magnolias



Leaves are up to 9cm long with wavy edges; the flowers are greenish and don't have petals; the fruit has a spiny husk



Beech

Key 6 – step 15



Flowers and fruits are in clusters suspended beneath an oblong, wing-shaped bract; the leaves are roughly heart-shaped



Limes



Flowers and fruits are in cylindrical catkins; the leaves are oval to oblong



Willows

Key 6 – step 16



Flowers are in small clusters; the fruit is a seed surrounded by a papery wing



Elms



Flowers are in slender, hanging catkins; the fruit is a nut



go to step 17

Key 6 – step 17



Leaves hairy on both surfaces; fruits are solitary or in clusters of a few; each nut is wrapped in a leafy sheath



Hazels



Leaves hairy only on veins on the underside; fruits are in a hanging catkin, paired nuts are attached to a large, 3-lobed, bract



Hornbeam

Key 7: cherry trees

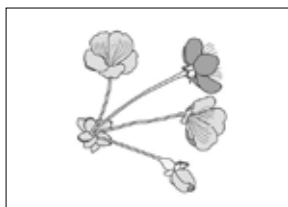
Key 7 – step 1



Flowers or fruits arranged in roughly cylinder-shaped spikes, 11 or more per spike



go to step 2



Flowers or fruits on their own or in clusters of 10 or fewer



go to step 3

Key 7 – step 2



Leaves hairless or with white hairs along midrib, sometimes only where veins join; flowers 10-15mm across



Bird cherries

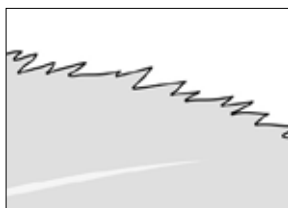


Leaves have rusty or orange hairs underneath, each side of the midrib; flowers 8mm across



Rum cherry

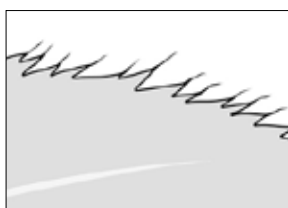
Key 7 – step 3



Flower and leaf stalks densely hairy; leaf edges have pointed teeth



go to step 4



Flower and leaf stalks hairless or almost hairless; leaf edges have pointed teeth, often with thin, bristle-like tips



go to step 5



Flower and leaf stalks hairless; leaf edges have blunt or round teeth, often with a claw-shaped gland at the tip



go to step 6

Key 7 – step 4



Sepal edges are toothed; leaves hairless on the upper side with hairy veins on the underside



Spring cherries



Sepal edges not toothed; leaves hairy on both surfaces



Fuji cherry

Key 7 – step 5



Bark on trunk and branches very glossy, purplish-brown and peeling in thin, copper-brown strips



Tibetan cherry



Bark mostly dull grey or brown, sometimes peeling to reveal shiny red-brown on the trunk



Japanese cherries

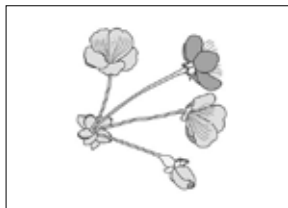
Key 7 – step 6



Flowers less than 20mm across, on stalks up to 15mm long, not arising from a central point; fruit less than 10mm long



St Lucie cherries



Flowers more than 20mm across, on stalks more than 15mm long, arising from a central point; fruit more than 10mm long



go to step 7

Key 7 – step 7



Flowers cup-shaped; leaves dull on the upper side, sparsely hairy on the underside



Wild cherry



Flowers saucer-shaped; leaves glossy on the upper side, hairless on the underside



Morello cherry

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Master Key: Types of tree found in gardens and urban areas

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Key 5: Deciduous trees with leaves arranged alternately, not divided into leaflets; fruits fleshy or juicy

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Key 6: Deciduous trees with leaves arranged alternately, not divided into leaflets; fruits dry

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Key 7: Cherry trees

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