

MAINTAINING TREES

and ensuring they are safe



Information about professional tree care
www.baumpflege-lexikon.de

Measures that destroy trees

Topping is the wholesale removal or reduction of the crown, or of parts of the crown or main stems. What is left behind are stumps. Topping is generally done with no regard for the tree's habitus (the crown shape) or for its physiological needs. It destroys the tree's supply system. Furthermore, it upsets the natural balance between the roots and the crown.



Wood decay fungi penetrate the large wounds left open by topping. Next to the topping cuts, many recovery growth shoots that grow vertically upwards (epicormic shoots) appear. These are usually very unstable and they compete with each other. They gradually become larger and they can break off due to their weight and due to the gradual worsening and progression of the rot at the topping site. This creates a great deal of extra maintenance work, which becomes extremely costly.



Topping is not a proper professional measure. In fact, it **destroys trees**. According to the applicable regulations, topping cannot be considered a tree care measure. Any company that does tree topping regardless of this fact may have to reckon with **claims for damages**.

The justification often given for tree topping is that it will make the tree safer or reduce the leaf mass, but this is simply not true. In fact, in most cases, the **risk of failure** actually **increases within** just a few years after topping. It is also not true that topped trees have less leaf mass. Only dead trees no longer have leaves.

Tree inspection and tree safety

Landowners are obligated to ensure that their land does not pose any risks to the public. They also have a **legal duty to maintain safety** with regard to their trees.



Fungal fruiting
► bodies, cracks and other symptoms may be signs of a hazard.

Under the legal duty to maintain safety, the tree owner is expected to check trees regularly. Professionals with the proper training and experience will be able to identify any tree damage or dangers posed by trees and propose appropriate remedial measures. Tree inspections must be documented.



► The dryad's saddle—an example of a wood decay fungus

Incorrect: scaffold branch cut

Damage is often caused not only by topping, but also by unnecessary removal of scaffold branches. A scaffold branch cut is a cutting measure that removes a branch with a diameter of more than 10 cm.

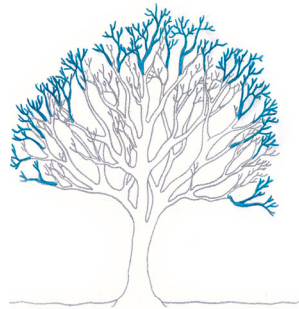
This type of cut can have severe consequences, including the wound area no longer being supplied and wood decay fungi penetrating the wound and severely reducing the stability of the wood. This increases the tree's risk of failure in the long term. Carrying out pruning measures at an early stage can help prevent the need to create excessively large wounds.

Measures for severely damaged trees (damaged tree)

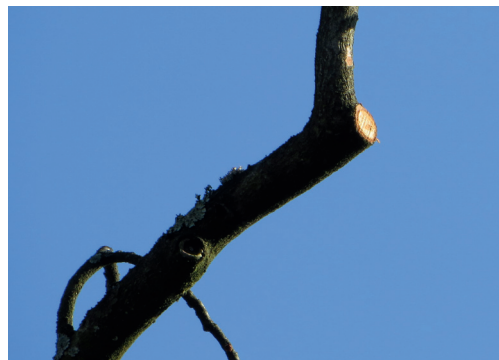
Whenever trees have severe damage that affects their stability and breaking strength, appropriate measures must be taken to make them safe again in terms of public and traffic safety. The damage could be caused by wood decay fungi or by cracks in the branches, for instance.

Crown reduction

Crown reduction reduces the height of the crown as a whole and/or its expansiveness to the sides. Cuts should be made as far as the supplying branch. The tree's characteristic external shape should be preserved.



► Light crown reduction on a plane tree. The main features of proper, professional crown reduction are reduction as far as the supplying branch and the preservation of the tree's shape or habitus / the habitus of the crown.



► The key characteristic of professional crown reduction: cutting as far as the **supplying branch**. This branch takes over the supply of the remaining scaffold branch, which helps promote occlusion and compartmentalisation.

Measures for ancient trees (senescent phase)

Once it reaches the senescent phase, a tree has already reached its final height and only forms short shoots. If the tree is stable, dead or damaged branches can be removed through **dead wooding** or crown care measures.



Crown thinning

Crown thinning (thinning out of the branches at the crown margin) is often the most suitable measure in the case of excessive shading by a dense crown or in the case of a decline in the outermost region of the crown. In tree species prone to branch failure, such as poplars, vigorous crown thinning or reduction of overhanging branches can reduce the load on the crown and thus help minimise the risk of breakage. With crown thinning, the tree's habitus (its overall external appearance) is left intact.



► An oak before and after crown thinning and crown care measures

Trees in residential settings

The value of a tree

Trees are living things that can live as long as 1000 years and grow over 100 metres high. As the “green lungs” of the Earth, they are invaluable. They also help shape the landscape and play an important aesthetic role in it.

A mature, 100-year-old beech can process 18 kg of carbon dioxide in a single day, producing 13 kg of oxygen. This is enough oxygen for about ten people.

Fruit trees provide humans with nourishment, plus we collect wood from the forest and use it to produce energy or build homes.

Trees improve the climate by increasing air humidity and by keeping temperatures down and providing shade, particularly in the summer months.

In addition to these important roles, trees also have a monetary value. This value depends on their age, species and location. The average value of an urban tree is around €3,000. In a medium-sized town with 30,000 trees, this amounts to €90 million.

Tree care

When trees grow near people, we have certain expectations of them. We expect them to fulfil their functions and not cause any damage (e.g. through breakage). Often, the only way to ensure that they do this is to carry out pruning measures. Therefore, the purpose of crown cutting measures is to keep trees **vital, aesthetically pleasing and safe in terms of public and traffic safety**.

The ZTV-Baumpflege (Additional Technical Contractual Terms and Guidelines for Tree Care) guidelines (see below) describe how to carry out pruning measures correctly. Crown cutting measures are done in accordance with the tree’s stage of development and its condition. They help support the tree in performing its intended function at its location as well as possible.

Bibliography

FLL (2006/2017): *Zusätzliche Technische Vertragsbedingungen und Richtlinien für Baumpflege (Additional Technical Contractual Terms and Guidelines for Tree Care)*. (guidelines, abbreviation: ZTV-Baumpflege)

Klug, P. (2016): *Praxis Baumpflege – Kronenschnitt an Bäumen (Practical Arboriculture – Crown Cutting on Trees)*. 3rd edition, Arbus Verlag

Klug, P., published (2017): *Arbolex Web App – Baumpflege-Lexikon (The Arboriculture Dictionary)*: www.arbolex.de. Arbus Verlag

Basic rules for crown cutting

All cutting measures wound the tree. Therefore, they should be done in a way that minimises the damage. In order to achieve this, there are certain rules that should be followed:

Cutting as far as the supplying branch / higher order branch

When branches are reduced, they should be reduced to the point of a side branch or supplying branch (see the “crown reduction” photo).

Cutting to the branch collar or outside of the branch bark ridge

If the branch is removed, this is done in front of the branch collar or outside the seam between the fork and the trunk, cutting diagonally downwards (see sketches).

Avoiding stumps

When removing branches, the creation of stumps should be avoided.

No cuts more than 10 cm in diameter

When scaffold branches (branches over 10 cm in diameter) are removed, there is an increased risk of wood decay fungi damaging the tree in the long term.

Timing of pruning

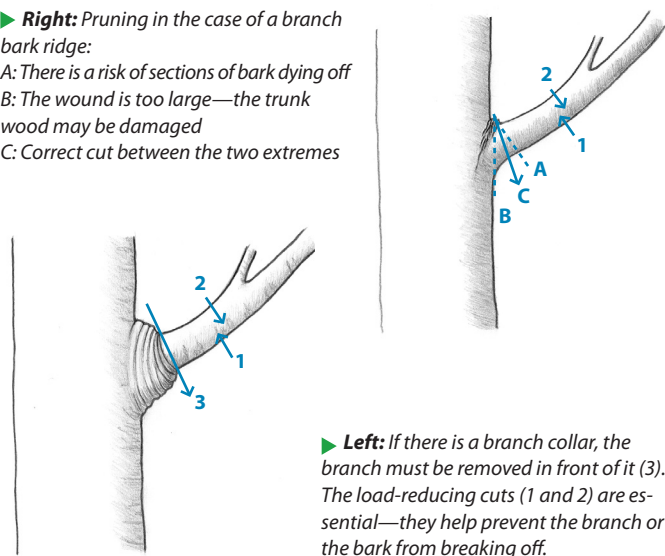
The tree is more able to respond to wounds during the annual growth phase. Severe measures involving the removal of a large amount of leaf mass should be done at the end of the dormant phase (end of February).

► **Right:** Pruning in the case of a branch bark ridge:

A: There is a risk of sections of bark dying off

B: The wound is too large—the trunk wood may be damaged

C: Correct cut between the two extremes



► **Left:** If there is a branch collar, the branch must be removed in front of it (3). The load-reducing cuts (1 and 2) are essential—they help prevent the branch or the bark from breaking off.

Pruning measures for saplings (juvenile stage trees)

Formative pruning (young tree care)

Young tree care is one of the most important tree care measures. This is because at the juvenile stage, it is still possible to support the tree in growing a stable crown.

This support can take the form of removing any undesirable growth or removing or reducing any crown sections that will be unstable in the long term, such as competing shoots.

Early action is taken to support the tree in adapting to the limits of the physical space it inhabits (e.g. on a road or next to a building). V-shaped forks and branches growing vertically upwards are features that are particularly prone to becoming hazards to people or property as the tree continues to develop. For this reason, these features should be removed or reduced as soon as possible.



► This V-shaped fork is already becoming critical. One of the competing shoots needs to be removed.

Clearance cutting

In the case of trees next to roads, a certain clearance has to be maintained. As early as the sapling stage, any branches that are growing too close to roads, buildings or other amenities should be removed.

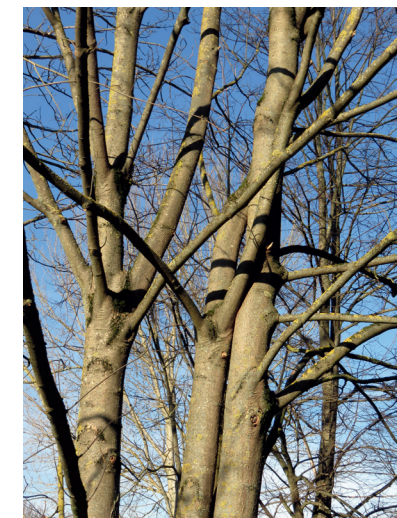


Measures for developing trees (mature trees / adult stage trees)

Crown care

The tree is in the growth phase. It is extending outwards and building a stable crown. Crown care measures support it in doing this.

Any branches that will be unstable in the long term are reduced or removed. In addition, dead or damaged branches are removed. Any undesirable developments that could cause damage in the years to come are also removed. Such developments include branches that are rubbing against each other, crossing each other, or growing too close together. Clearance cutting ensures that the proper clearance is maintained between trees and roads, buildings or other amenities.



► Branches rubbing together can cause long-term damage. In some cases, the tree cannot occlude the wound caused by the rubbing due to the constant friction. This develops into a weak point.

► Damaged branches must be removed or reduced.



Professional tree care

Professional tree care (arboriculture) is made up of a set of measures used to support tree development and keep trees safe in terms of public and traffic safety or restore them to a safe state. Therefore, a measure can only be defined as a tree care measure if the benefits outweigh the damage. If a tree is already safe in terms of public and traffic safety, then severe measures will do more harm than good. If a tree poses a hazard, for example due to severe damage caused by fungal infestation, then in some cases, severe measures may be appropriate.

For example, as an alternative to felling, severely damaged trees may be cut back to the trunk and preserved in that form as habitat trees. This should only be done after a prior in-depth tree inspection by an expert. Experts with the appropriate practical experience will be able to assess a tree’s condition and then recommend the appropriate measures or carry them out.

The information in this leaflet is taken from the book: “Praxis Baumpflege – Kronenschnitt an Bäumen” (“Practical Arboriculture – Crown Cutting on Trees”).



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