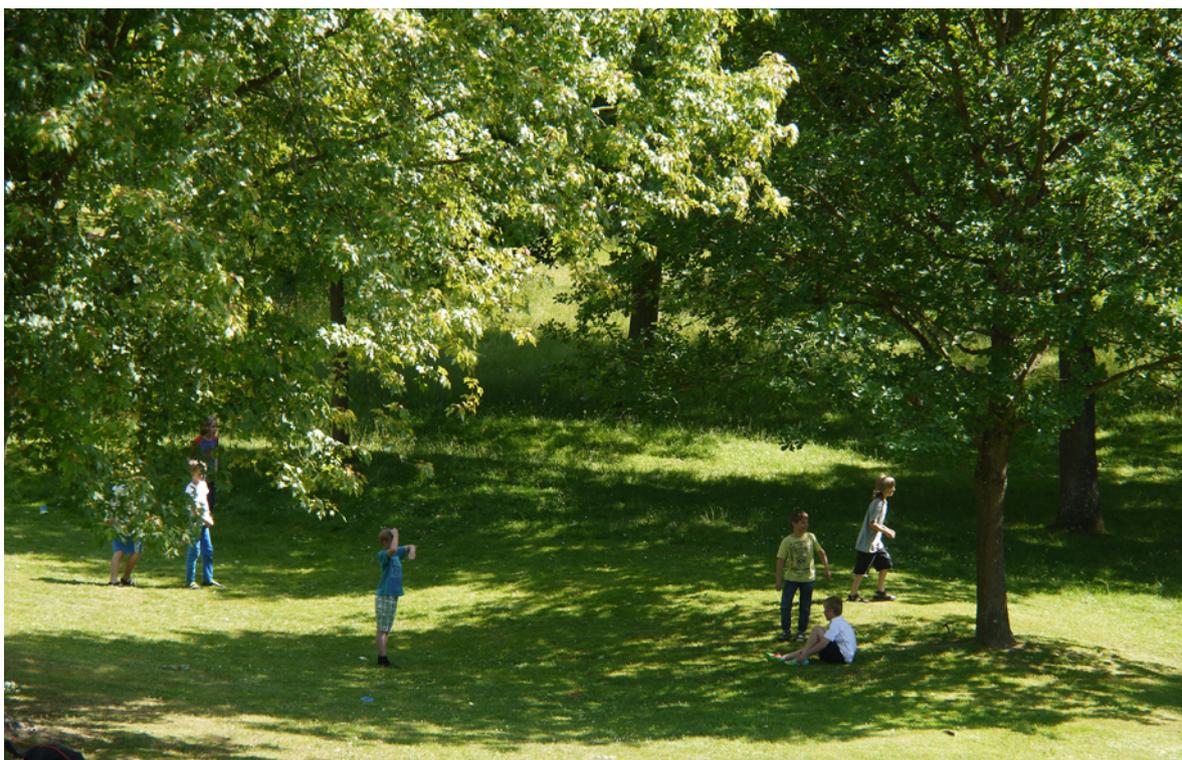


# Striking a balance

– extended english summary



## Bilaga 4. Striking a balance – extended english summary

Trees in public places, such as cemeteries, avenues, parks, public gardens, and other public open spaces are valuable from many perspectives. They have high natural, cultural, and historical values and can be important for human health and quality of life. Trees have a positive impact on human well-being, have high economic values, and provide ecosystem services such as the capturing of air pollutants and temperature regulation.

It is common that trees in public places need to be managed, for example for reasons of safety where damaged trees can pose a risk to both people and property, or lack of space between trees and buildings.

Many different stakeholders with different competences come together around these trees. This can include property owners, park managers, arboriculturists, landscape architects, planners, biologists, and historians. All the different stakeholders have different frames of reference, terminology, and approaches, which can sometimes make it difficult to understand one another. When discussing tree management, there is thus a risk that those involved start primarily from their own experience and interests, with in many cases different views on what is valuable and the management approach to take. An old hollow tree for example, may be considered to be damaged and in need of replacement, or it may be seen as a valuable biological habitat for rare species which should be allowed to remain for as long as possible. This may lead to conflicts and ultimately the implementation of less suitable management in the area.

To ease cooperation and to get the best possible outcome for our trees in public spaces, several public authorities, and organisations in Sweden have joined forces to develop this model to clarify the value of the trees before planning any management. ‘Striking a Balance’ has been written for both tree managers and public authorities so that the management of valuable trees in Sweden will be as easy to understand, transparent, and as consistent as possible, with the help of the model.

The public authorities and organisations that have been involved are the Swedish National Heritage Board, the Swedish Environmental Protection Agency, the Swedish Transport Administration, the Church of Sweden, the Swedish University of Agricultural Sciences, the County Administrative Boards, the Swedish Association of Urban Park Managers (Föreningen

Sveriges stadsträdgårdsmästare) and the Swedish Association of Cemetery Managers (Föreningen Sveriges kyrkogårdschefer). The model is a step-by-step approach that starts with a description of why the trees need management and what the conditions are at the site. This is followed by an evaluation of the values of the tree component and the trees, as well as the legislation applicable. It then identifies the management options which could be considered and selects the most appropriate one. The first version of the model was developed in 2014 and it was revised in 2022.

### **1. Tree values**

The model assumes three categories of values: cultural and historical values, nature conservation values, and social values. Ecosystem services are not a separate category as many are included as a part of the other values.

### **2. Cultural and historical values**

Trees in avenues, parks and cemeteries are part of the biological heritage and are living monuments to human presence. They have often been planted and designed for specific reasons, such as to create an atmosphere, to express power or to provide practical benefits such as fodder, or shelter from the wind and weather for livestock. Trees represent the spirit of the times, tradition, a view of nature and aesthetics, and in some cases may be linked to a historically interesting person. They can have educational values and be important sources of information for research. Trees may also represent a genetic heritage, such as a particular species, variety, or clone that has been cultivated by humans and is associated with a specific place or period.

### **3. Nature conservation values**

Trees in parks, gardens, avenues, and cemeteries are of great importance for biodiversity. Much of this diversity is linked to old trees. Large, old, and hollow trees are valuable for a range of different insects, lichens, mosses, and fungi. High biodiversity provides us with more stable ecosystems, which in turn provide us with ecosystem services. Trees are also important for, for example, bats and nesting birds. The main reason for the species richness is that an old tree can be gnarled, with coarse bark, hollows, and dead wood that provide a variety of microhabitats.

### **4. Social values**

Trees in public places are important for a variety of social values such as public health, recreation, exercise, social gatherings, contemplation, mourning, aesthetics, and sense of identity and place. Public parks are particularly important areas for recreation when they are in cities or neighbourhoods that are not close to natural areas. Natural environments are important for

recovery from mental fatigue and green spaces provide measurable improvements in mental health, self-confidence, and concentration, as well as contributing to improved physical health. Parks and cemeteries are widely used for walking, socialising, and recreation.

### **5. Premise for a successful approach**

This method relies on all stakeholders cooperating. It is well understood that good cooperation usually leads to the best results, where everyone is satisfied. A prerequisite for this is that the values are clearly described and that everyone involved is prepared to share their knowledge, to listen, and to learn from one another.

The aim of caring, maintaining, restoring, and replanting of trees in public spaces should be to consider as many of the values and interests as possible with all management options. To achieve this, it is beneficial to focus on common interests, constructive solutions, and compromises.

Most values – cultural and historical, nature conservation and social – are fully realised when the trees are in the best of health and thus have the best chances for growing old. Other common denominators include dealing with serious tree diseases and ensuring the continuity of the tree components by planting new trees.

### **6. Take advantage of each other's knowledge**

In addition to knowledge within their own fields, all involved should strive to gain knowledge of the other values associated with trees. This applies to planners, decision-makers, and administrators as well as landowners, contractors, and experts in various subjects. In many cases, conflicts are due to ignorance rather than unwillingness to cooperate. The different values of trees need to be identified, specified, and described so that they can be considered when decisions are made, and management options are implemented.

### **7. An approach without prestige**

The model for balancing different values and interests described here, requires an approach without prestige. Everyone must be prepared to analyse the different values of the tree component, without preconceived ideas, to decide what should be prioritised for the area in question. This also means that everyone must be prepared to accept that the values they are charged with representing and defending may, in some situations, be of a lower priority than others. It is often possible to find constructive solutions that benefit more than one value, whilst also remaining within the law.

## 8. Constructive cooperation takes time

Often, constructive cooperation between different sectors and stakeholders is hampered by a lack of time. Balancing different interests requires that all involved have time to gather the facts, discuss options, and plan the management.

This proposed model therefore takes more time, at least initially, than dealing with issues and individual cases from a more limited perspective where only one or a few values are considered. It is hoped however, that the approach outlined in this model will lead to more sustainable and well-informed decisions, whilst also reducing the risk of inadequate material in relevant applications.

## 9. Striking a balance model for weighing up different interests

Before planning the management options, the values of the site need to be identified, and an assessment made of how best to conserve and preferably develop these values. To correctly evaluate and propose management, it is necessary to:

- describe all values,
- take account of the conditions of the setting and the management,
- check the legislation to see whether the management proposal requires a permit or an exemption.

## 10. Distinguish between the setting and trees

In the model, we distinguish between the trees and the setting. The setting refers to the wider context in which the trees are situated. This can be, for example, an avenue in a rural or urban setting, a manor house or country estate, a cemetery, or a park in a residential area.

Only after the setting and the trees have been assessed, is it time to discuss concrete measures. A measure that is deemed inappropriate in one setting may be the most appropriate in another. For example, it may be justified to leave standing dead stumps or dying trees in an area considered to have particularly high nature conservation values, whilst it may be inappropriate to leave such trees in a setting deemed to have particularly high cultural and historical values. Similarly, different types of pruning may be appropriate in some settings but not others.

The parameters have been taken from the latest Swedish guidelines in each area. For cultural and historical values, the parameters are based on the Swedish National Heritage Board's Platform for Cultural and Historical Assessment and Prioritisation (Plattform Kulturhistorisk värdering och urval). For the nature conservation values, the parameters are taken from the Action Plan for Trees with High Nature Conservation Values,

Swedish Standard SS 199000:2014, Biodiversity survey – implementation, assessment, and reporting (NVI) and AHA – a simple method for evaluating conservation priorities in South Swedish parks and urban areas from a saproxylic insect viewpoint. For the social values, the parameters are based on a combination of the guidelines from international organisations such as the European Office of the World Health Organisation, latest research compiled by Green Cities Good Health, and recommendations from Swedish authorities.

## **11. Method A and B**

There are two variants of the model: Method A, for simpler cases, can be used for example, to replace a few dead trees in an avenue, and Method B, for complex cases, can be used for those occasions when a whole area is involved.

When using Method A, it may be the site manager, the practitioner, or the person who intends to carry out the work who identifies the values of the area, the legislation concerned and then the most appropriate course of action. Checklists are available for completion to clearly identify the tree values in the area. The manager or practitioner then applies to the relevant authorities for an exemption or permit. A complete application containing all the important descriptions and supporting documents will be much quicker to process than an application that is incomplete.

When using Method B, the best results will be obtained if the site manager or practitioner gathers the people, at an early stage, who can represent the different areas of interest. Together they will identify, with the help of more sophisticated checklists, the values that exist in the area. This simpler method is used in cases where only a few trees in a defined area are affected, for example if one or a few trees have died amongst the trees surrounding a cemetery or if a few trees along an avenue are considered to be a safety risk.

## 11.1 METHOD A

## Flow chart Method A

<b>STEP 1</b>	Description of the problem and objectives
<b>STEP 2</b>	Description of the site characteristics and management conditions
<b>STEP 3</b>	Identifying the values of the site
<b>STEP 4</b>	Need for a legal assessment
<b>STEP 5</b>	Proposals for possible management options based on the problem, conditions, legislation and values
<b>STEP 6</b>	Selection of the most appropriate managements
<b>STEP 7</b>	Submit an application
<b>STEP 8</b>	Case management by the appropriate authority
<b>STEP 9</b>	Implement the management

**STEP 1****Description of the problem and objectives**

The site manager or practitioner describes the problem and the underlying reasons for carrying out an action, as well as the objectives for the area. This description should specifically explain, *why* the site manager or practitioner considers the action to be justified and what results are expected.

**STEP 2****Description of the site characteristics and management conditions**

The site manager or practitioner describes the physical conditions of the site and the trees,

and the management options available on the site that are relevant. There may also be a link to the legislation.

**STEP 3****Identifying the tree values of the site**

The area affected by the planned management is assessed, by filling in the three checklists below: one for cultural and historical values, one for nature conservation values, and one for social values. Please note that ecosystem services are not a separate category, but these can be included in the different parameters for cultural and historical, nature conservation, and social values.

**How to fill in the checklists?**

Each checklist consists of a total of nine parameters: three parameters for the assessment of the setting and six parameters for the assessment of values related to the trees and the tree components. The parameters are assessed as either 'yes' (completely or predominately true) or 'no' (not true at all or true only to a small extent).

The last six parameters are used to assess the trees affected by the planned management. If there are significant differences between individual trees and their values, a checklist should be completed for each tree or group of trees, as they may need to be treated differently depending on their respective values.

The checklists are not designed in such a way that they are comparable. Some parameters overlap, but this does not make them any less useful in this context.

## CULTURAL AND HISTORICAL VALUES

<b>Simpler evaluation of the cultural and historical values</b>		
<b>Environment or setting (refers to the cultural environment which surrounds the trees, including buildings, structures, roads etc.)</b>	<b>yes</b>	<b>no</b>
1. The site is within a designated or otherwise renowned cultural environment		
2. The site lies within a protected cultural environment		
3. The site has a cultural and historical connection with the tree or trees		
<b>Tree/trees affected by the planned management</b>		
4. The tree or trees that are part of the tree component constitute an important part of the cultural environment		
5. The tree or trees that are part of the tree component have been planted and managed with an intentional design or planted to commemorate an event or person		
6. The tree or trees are of a particular species, variety or clone that is of special importance to the design		
7. The species, variety or clone of the tree, the design, and pruning are specific to the type of cultural environment and may be characteristic of the locality/region		
8. The tree or trees have a clear sign of current or previous regular pruning		
9. The tree or trees that are part of the tree component have been planted and managed for practical or economic purposes		

## Setting

### 1. The site is within a designated or otherwise renowned cultural environment

The site is located, for example, within or adjacent to an area of national importance for cultural and historical values or is included in the municipality's overarching strategy, cultural environment programme or green infrastructure plan, or is otherwise known as a valuable cultural environment.

It is important to bear in mind that the surveys on which these plans and programmes are based, are not comprehensive, i.e. there may be valuable cultural and historical sites which are not listed.

### 2. The site lies within a protected cultural environment

The site is located, for example, within or adjacent to a cultural reserve, listed building, churchyard, or cemetery. In some cases, the site may also be associated with ancient monuments. Trees may also be protected by regulations outlined in the local development plan.

### 3. The site has a cultural and historical connection with the tree or trees

The trees are a part of the same cultural and historical context as the surroundings and are a part of its formation or development, e.g. manor house – surrounding park, buildings – ornamental trees, working estates – avenues and parks.

## Tree/trees affected by the planned management

### 4. The tree or trees that are part of the tree component constitute an important part of the cultural environment.

Some trees or tree components are an important and distinctive part of the cultural environment. This could be for example specific trees at the entrance to a particular place, or trees that form an important part of the design of a square or open area. Without these trees, it would be much more difficult to understand the cultural and historical context of the site, even if there are other components that also reflect this context. Examples of such tree components are esplanades or tree planting which creates a 'green roof' in open spaces.

### 5. The tree or trees that are part of the tree component have been planted and managed with an intentional design or planted to commemorate an event or person

The tree or tree component is itself, or is part of, a deliberate design of the vegetation in the cultural environment, as evidenced and expressed by its location, choice of species or variety, and pruning. The trees and bushes create sightlines and spatial divisions. Examples include an avenue in an estate, a ring of trees around a cemetery, or trees in an urban park that create spatial divisions. Even a solitary tree can be a part of a deliberate design, such as an ornamental tree or a tree in the centre of a town square or other public space. The management may, however, have been neglected or changed, so that the character has changed e.g. that the tree or bush is no longer pruned to a specific form. The design or layout may in some cases be exemplary and, in some cases, associated with a particular garden or landscape designer.

Trees may also have been planted in a specific place in memory of an event or person.

**6. The tree or trees are of a particular species, variety or clone that is of special importance to the design**

Trees of a particular species, variety or clone can be an important part of the character of the site and can often tell us something about the intention and thoughts behind the design. These may include trees with special branch angles, such as weeping trees or pyramidal-shaped trees. There may also be trees with distinctive leaf shapes and colours. If the trees have been replaced with other species, it may have an impact on the perception of the original design, e.g. where symmetry and uniformity have been and are important.

**7. The species, variety or clone of the tree, the design, and pruning are specific to the type of cultural environment and may be characteristic of the locality/region**

Examples include pollarded willows, pollarded limes in association with a manor house, or the selection of birch as an urban tree in certain locations in northern Sweden. These may be significant for the specific character of a geographical area and may reflect the cultural and historical development.

Other examples include cherry tree groves, land that is or previously has been owned by noblemen or Crown land where oaks were conserved to a greater extent than elsewhere.

**8. The tree or trees have a clear sign of current or previous regular pruning.**

Some trees or tree components have been pruned regularly according to a certain tradition or idea typical of a specific time period to create a certain shape of the crown e.g., a flat canopy, straight sides or the appearance created by regular pollarding. As a part of traditional agriculture, trees have also been regularly pruned, for example by shredding or traditional pollarding, primarily to supply the household and which has created trees with a certain shape of crown.

**9. The tree or trees that are part of the tree component have been planted and managed for practical or economic purposes**

Many trees have been deliberately planted or nurtured and managed for practical or economic reasons, which may remain. Examples include shelter belts or trees which could prevent the spread of fire or to protect against lightning strikes, fruit trees and nut-bearing trees, or trees used for fodder production.

## NATURE CONSERVATION VALUES

<b>Simpler evaluation of the nature conservation values</b>		
<b>Environment or setting (the surrounding biotope or the ecological landscape of which the tree is a part)</b>	<b>yes</b>	<b>no</b>
1. The area has lots of trees with high conservation values.		
2. The site is in a core area according to the green infrastructure network or it connects one or more core areas.		
3. The area contains red-listed species.		
<b>Tree/trees affected by the planned management</b>		
4. The tree has trunk cavities		
5. The tree is over one metre in diameter at breast height		
6. The tree is old (more than 200 years for oak, beech, pine, and spruce or more than 140 years for other tree species)		
7. The tree is home to red-listed species, or is itself a red-listed species		
8. The tree has coarse bark, exposed wood, extensive sap runs, brackets or other wood-living fungi		
9. The tree is a monolith with a height of at least two metres or contains a lot of dead wood		

## Setting

### 1. The area has lots of trees with high conservation values

Large, old, or hollow trees provide habitats for other rare species, such as wood-living insects or lichens. The more such trees there are, the greater the potential for the site to contain red-listed species.

High occurrence means that there are at least ten large, old, or hollow trees within a radius of 500 metres.

There are two ways of obtaining information on this. Either you can search for trees with high conservation values (särskilt skyddsvärda träd) in the Swedish Species Observation System (Artportalen), or you simply look in the surrounding area for trees that meet at least one of the following criteria.

- Large trees. Trees larger than one metre in diameter at the narrowest point below breast height.
- Very old trees. Spruce, pine, oak, and beech older than 200 years. Other tree species older than 140 years.
- Large hollow trees. Trees larger than 40 cm in diameter at breast height with a well-developed cavity in the main trunk.

### 2. The site is in a core area according to the green infrastructure network or it connects one or more core areas

Many of the rarest species have difficulty travelling long distances. For dispersal to be possible, a certain number of trees with the right characteristics are needed within a certain distance. It is often said that species require a green infrastructure. If the area is part of a specific biotope and is situated within a landscape area where there are plenty of similar

valuable habitats of the same biotope, this is known as a core area.

Most County Administrative Boards have identified the core areas for trees. You can see for yourself if the site is situated in a core area. Core areas may have different names depending on which county administrative board has developed them, but core areas for large, old, or hollow trees; oak or broadleaved woodland are common. You can find the extent of the core areas on the County Administrative Board's website. Search for 'green infrastructure'.

### 3. The area contains red-listed species

The presence of red-listed species that are dependent upon trees in a site indicate high nature conservation values. Where red-listed species are present, there are usually many other species present that are not red-listed. Many of the red-listed species are hard to find and it often requires expert knowledge to determine which species it is. The site manager is not expected to do this in straight forward cases, but they can search for red-listed species in the Swedish Species Observation System (Artportalen) for the area, using the search function.

One should be aware that just because there are no red-listed species recorded, this does not mean that there are none in the area. These species can be difficult to find; for many sites, there may be no species records at all. This does not necessarily mean that the site has no red-listed species, but simply that nobody has investigated the site for these species yet. In this case, you can make a note of this under "notes" instead of ticking 'yes' or 'no' in the table (see appendix 2).

## **Tree/trees affected by the planned management**

### **4. The tree has trunk cavities**

Many wood-living insects, as well as many birds and bats live inside tree cavities. Many of these species live in the soil-like wood mould that is found within the cavities. Wood mould consists of decomposed wood and the remains of leaves, twigs, and animals. Cavities refer to entrance holes in the wood. Damage to bark that has callused over, shallow woodpecker marks, ripped or broken branches are not considered to be holes.

### **5. The tree is over one metre in diameter at breast height**

There is a correlation between how large the tree is and the number of different structures the tree has developed, and which different species can inhabit. Trees larger than one metre in diameter at breast height, equivalent to 314 cm in circumference, are particularly valuable. Measure the tree with a tape measure. There are special tape measures designed for measuring the circumference trees, but it is not necessary to use these for measuring the tree.

### **6. The tree is old (more than 200 years for oak, beech, pine, and spruce or more than 140 years for other tree species)**

For a tree to be considered as old, it needs to be more than 200 years for oak, beech, pine, and spruce or more than 140 years for other tree species. There is a relationship between the age of the tree and the number of different structures that the tree has developed for different species to inhabit. Even small diameter trees that are old can develop these structures, such as pollarded trees or trees that have grown in nutrient-poor soils.

It is often difficult to judge how old a tree is, so one should look for clues in the history of the area instead. Is there any written information about when the trees were planted? Do they appear on old maps? Do they appear in any descriptions?

### **7. The tree is home to red-listed species, or is itself a red-listed species**

If the tree itself is red-listed, or is home to a red-listed species, this will be given weight when legally assessing the management in relation to the Environmental Code. It is important to adapt the management proposal so that the red-listed species is not harmed or killed by the management.

### **8. The tree has coarse bark, exposed wood, extensive sap runs, brackets or other wood-living fungi**

Coarse bark, exposed wood, or extensive sap runs are structures that benefit many different species in different ways.

Coarse bark means that the bark ridges are at least two centimetres deep. The coarser the bark, the more different types of mosses, but primarily lichens, can be found on the tree.

Exposed wood means that the bark has fallen off a part of the trunk, and the exposed, dry trunk wood can be seen. The exposed wood is used by many insects, for example to lay their eggs.

Sap runs are where the sap runs out onto the trunk from a wound on the tree. The sap is sweet and at night, it attracts many insects that use the sap as a source of food. Sap runs look like a long, narrow dark area on the trunk.

Fungal brackets or other fungi that grow on trees may be large or small. They are most often found on the trunk or larger branches but may also be found on smaller branches.

**9. The tree is a monolith with a height of at least two metres or contains a lot of dead wood**

Dead wood can be found in different forms on the tree. The most valuable is the standing dead wood in the form of a monolith

(standing dead tree), but also dead wood in the crown of live trees is extremely important, both larger and smaller branches. To answer yes to this point, the whole tree must be dead, a monolith or there should be more than 30% dead wood in the crown (see appendix 2).

## SOCIAL VALUES

<b>Simpler evaluation of social values</b>		
<b>Environment or setting (the place and surroundings in which the trees are a part, as it is experienced by people visiting)</b>	<b>yes</b>	<b>no</b>
1. The site is visited or passed by many people or is a visitor attraction		
2. The site is a place for mourning, recreation or social interaction and experiences		
3. The setting is shielded from disturbing influences in the surroundings		
<b>Tree/trees affected by the planned management</b>		
4. The tree creates a sense of identity or has great symbolic value		
5. The tree or trees within a tree element is important for the spatial perception of the site		
6. The tree or trees within a tree element is an important part of the view for many people		
7. The tree or trees within a tree element is an important play or recreation area		
8. The tree or trees within a tree element have high aesthetic values		
9. The tree is unusually large or very old		

## Setting

### 1. The site is visited or passed by many people or is a visitor attraction

The more people that use an area, the more important it is from a social perspective.

Examples of well-frequented areas or areas where many people pass include roads and squares, but also centrally located churchyards and parks.

### 2. The site is a place for mourning, recreation or social interaction and experiences

For many people, cemeteries, but also for example hospital parks, are important places for reflection and mourning. Different factors in the design of the setting, such as the presence of old trees, affect the harmony, calm, and peacefulness of the setting. Many people visit green spaces with trees for recreation or socialising. The content and design of the environment can help encourage social gatherings, picnics, rest, and other activities. For children, the ability to climb, play, and move freely in the environment is a great asset.

### 3. The setting is shielded from disturbing influences in the surroundings

An area that is shielded from, for example, visual disturbance or noise from the surrounding environment provides better conditions for relaxation, recreation, and contemplation. Geographical location is of course important, where for example an area near an airport, is rarely free from disturbance. However, the design of the area, with for example protective tree and bush shelter belts is also important.

## Tree/trees affected by the planned management

### 4. The tree creates a sense of identity or has great symbolic value

Around the country there are many trees that create a sense of identity or have great symbolic value, such as open-grown trees, or trees that are associated with a particular atmosphere or experience, such as characteristic trees along roads, in squares and other public places.

### 5. The tree or trees within a tree element is important for the spatial perception of the site

A large solitary tree in the middle of an open space or an avenue that creates sightlines, affects the spatial perception. This is particularly noticeable when the trees are removed, and the area can suddenly be perceived as being bare or exposed. Sometimes trees can also create their own spaces, for example avenues surrounding an area with graves in a cemetery.

### 6. The tree or trees within a tree element is an important part of the view for many people

Studies show that being able to see trees and green spaces has a positive impact on human health. If many people can see the tree, for example from a hospital, nursing home, school or their home, the tree has a higher value than if no-one or only few people can see the tree.

### 7. The tree or trees within a tree element is an important play or recreation area

Trees that provide opportunities for play or recreation can be very important, especially for children. Trees, especially those with distinctive shapes, can be inspiring and stimulating for the imagination and thus contribute to play and recreation. Many people also find it peaceful and restorative to just lean against a tree.

### **8. The tree or trees within a tree element have high aesthetic values**

Unusual trees and trees with distinctive shapes, or beautiful colours often arouse curiosity and are appreciated for their beauty. For example, trees with extensive crowns, trees with a special leaf colour, flowers or trees that attract attention due to how they have been pruned or pollarded.

#### **STEP 4**

##### **Need for a legal assessment**

The site manager or practitioner must investigate whether specific regulations apply in the area and find out what management actions the legislation allows.

#### **STEP 5**

##### **Proposals for possible management options based on the problem, conditions, legislation, and values**

Once all the values have been identified and it is clear what regulations apply in the area, it is up to the site manager or practitioner to propose the possible management options.

Presenting different possible management options reduces the risk of overlooking other, perhaps more long-term sustainable solutions.

The following list can be used for this step:

- describe the ‘do-nothing’ alternative, i.e. what happens if nothing is done,
- describe different possible solutions to address the problem based on the characteristics and conditions of the site,
- indicate the advantages and disadvantages of the different solutions and how they affect the cultural and historical, nature conservation and social values of the area,

### **9. The tree is unusually large or very old**

Large and old individual trees have been shown to evoke particularly strong emotions and contribute to the sense of antiquity and continuity of the site.

- describe whether the different solutions are compatible with any regulations that may apply in the area and, if so, what could justify a permit or exemption from these regulations.

#### **STEP 6**

##### **Selection of the most appropriate management**

It is now time to select and describe the most appropriate management option. This should be the option that best respects the values of the site and the regulations that apply to it, whilst also being cost-effective and sustainable in terms of long-term management. It is important to demonstrate how the chosen management option will lead to the achievement of the objective described in step 1.

Although the aim with the ‘Striking a Balance’ Model is to find solutions that benefit or at least consider all tree values as much as possible, in some cases priorities need to be set between different values. Using the completed tables, it is easier to find consensus on how to prioritise between different values in each case.

The assessment of the parameters is not a simple scoring exercise, where the aspect with the highest score wins and automati-

cally becomes the one that is given the greatest priority. The checklists for the different values are not designed in such a way as to be directly comparable and the order of the parameters in the table does not reflect their relative weight. It is also not certain that the value of the area increases with the number of parameters met. The checklists are intended to provide a factual basis for understanding the values of the setting. The tables are primarily intended to provide a factual basis for further discussion on the appropriate design of the management options.

### **STEP 7**

#### **Submit an application**

If a legal assessment is required, an application should be submitted to the appropriate

authority (if no assessment is required, proceed directly to step 9, i.e. implementation of the management option).

### **STEP 8**

#### **Case management by the appropriate authority**

The authority now begins work dealing with the case.

### **STEP 9**

#### **Implement the management**

The practical details should preferably be shown to the person responsible for implementing the management options.

## 11.2 METOD B

**Flow chart Method B**

<b>STEP 1</b>	Description of the problem and objectives
<b>STEP 2</b>	Description of the site characteristics and management conditions
<b>STEP 3</b>	Identifying the values of the site
<b>STEP 4</b>	Need for a legal assessment
<b>STEP 5</b>	Proposals for possible management options based on the problem, conditions, legislation and values
<b>STEP 6</b>	Selection of the most appropriate managements
<b>STEP 7</b>	Submit an application
<b>STEP 8</b>	Case management by the appropriate authority
<b>STEP 9</b>	Implement the management

The more advanced method is used in complex cases, for example when working on a local development plan in an area with many trees or if many trees in a cemetery or avenue have been affected by disease or have died and the whole tree population needs to be reviewed.

In such cases, it is important to carefully identify the value of the setting and the trees before deciding on the most appropriate management options. This is done by bringing together various experts at an early stage. This may seem time consuming compared with dealing with the issues and cases from a more limited perspective. In most cases however, it is still more efficient as it reduces the risk of inadequate background material in any legal applications, the requirement for providing supplementary information, and possible appeals.

### STEP 1

#### Description of the problem and objectives

The site manager or practitioner describes the problem and the underlying reasons for carrying out an action, as well as the objectives for the area. This description should specifically explain, *why* the site manager or practitioner considers the action to be justified and what results are expected.

### STEP 2

#### Description of the site characteristics and management conditions

The site manager or practitioner describes the physical conditions of the site and the trees, and the management options available on the site that are relevant. There may also be a link to the legislation.

### How to fill in the checklists?

For method B, there are two tables for each value. First, the setting where the tree or tree component is located is evaluated using a checklist of ten parameters. Next, the tree or trees affected by the planned management are evaluated using a checklist with eight parameters.

The parameters for the assessment of the setting are rated on a four-point scale, where A stands for 'fully met', B stands for 'met to a significant extent', C stands for 'met only in one or a few minor parts of the area or in the setting, but only to a very limited extent', and D stands for 'not met at all'. The parameters for the evaluation of the trees are rated on a binary scale with 'yes' or 'no' answer options. It should be noted that only the trees affected

by the proposed management need to be assessed. If there are significant differences between individual trees and their values, a checklist should be completed for each tree or group of trees, as trees may need to be treated differently depending on their values. The trees that are assessed as valuable are plotted on a map so that everyone can see which trees are particularly important to take into consideration.

It is desirable, but not always necessary, to assess all parameters. For example, when dealing with a single tree in an urban area dominated by streets and buildings, the setting is not always of much importance. Here, one can concentrate on the assessment of the value of the individual trees.

**STEP 3****Identifying the values of the site**

In this step, the site manager or practitioner brings together various experts. Due to the complexity of the parameters of the more in-depth assessment, it is not possible for one person to describe all the values of the site and assess the parameters included in the model. It is important that all stakeholders are represented in such a way that all aspects and issues are raised at an early stage, otherwise there is a risk of time-consuming appeals and the requirement for supplementary information later in the process. It is also important that the site manager and practitioner are involved in the process so they can explain the conditions of the site and what management options are possible to implement. The team then works together through all the subsequent steps.

**CULTURAL AND HISTORICAL VALUES**

Cultural environments which often have trees which are valuable from a cultural and historical perspective include churchyards, parks and gardens in urban areas, avenues, esplanades, country estates, industrial areas, as well as some older stretches of road, villages, or estates. It can also include trees in relatively small areas such as gardens, by houses (ornamental or entrance trees) or short avenues. Old trees can provide an understanding of the historical depth of a place. Many trees have been exchanged or removed without being replaced over the years and the remaining trees may reflect visions and activities.

The parameters and concepts defined below are mainly based on the National Heritage Board's Platform for Cultural and Historical Assessment and Prioritisation and are simplified and adapted for environments with trees.

Some key terms in this context are *cultural environment*, *cultural and historical context*, *component*, and *interpretation*.

*Cultural environment* – refers to the whole environment which has been influenced by humans, which has been shaped to varying degrees by different human activities and practices. A cultural environment can be specified and delineated to include an individual site or remnant, a small or large section of a landscape, settlement, or region. It can include intensively used urban or industrial areas, as well as extensively managed woodland or mountain landscapes. The cultural environment includes not only the physical content of the landscape but also intangible elements such as place names or legends associated with a place or an area.

*Cultural and historical context* – refers to a specific identified and delineated historical sequence of development, including activities or events that have had a formative impact on the particular cultural environment in various ways. The cultural and historical context of a cultural environment and its expressions, provide the basis for the assessment of its cultural and historical values. Several different cultural and historical contexts can be attributed to a single cultural environment.

*Component* – term for the part that is included in the cultural environment.

*Interpretation* – refers to how far it is possible to interpret, understand and communicate essential elements of the cultural and historical context of a cultural environment from its physical content and characteristics.

To apply the parameters, the participating experts must consider the conditions of the cultural environment in terms of what components, structures, and relationships exist and how these reflect the cultural and historical context(s) that have been delineated. To support this, the following questions can be

asked: *What components are present in the cultural environment (e.g. buildings, structures, remains, land-use, plantings)? Are there connections (sightlines, paths, connectivity of use) between the components? What activity or activities have taken place there?*

<b>Evaluation of the cultural and historical value of the setting</b>				
<b>This refers to the cultural environment which surrounds the trees, including buildings, structures, roads etc.</b>				
	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
1. The cultural history of the setting can be interpreted and understood				
2. The setting has potential for extracting knowledge				
3. The setting reflects a shorter and limited period				
4. The setting reflects a longer period (long continuity which can be perceived)				
5. The setting is representative of a particular cultural and historical development process				
6. The setting is characteristic of the region				
7. The setting is a model or has had particular significance for the cultural and historical development				
8. The setting is rare (priority parameter)				
9. The setting is under threat (priority parameter)				
10. Conditions for management are good (priority parameter)				

### 1. The cultural history of the setting can be interpreted and understood

The setting has great educational potential if it is easy to interpret and provides good opportunities for conveying, understanding, and experiencing its cultural history. Here it is a question of assessing the extent to which the setting can reflect underlying cultural and historical events through its components. When the cultural environment is well conserved and the relationship between its components are clear, the potential for understanding and experiencing the cultural and historical context of the setting is normally enhanced. This can be, for example, iron-works and other industrial areas with a surviving manor house and associated parkland, production buildings, worker and service dwellings, ponds and channels, and where functional and visual relationships are obvious. A motorway that cuts through an estate with avenues of trees may be an example of a phenomenon that can reduce the opportunities for understanding.

To support this, the following questions can be asked: What is present in the area, in terms of components, structures, and connections? What activity or activities have taken place here? Have significant and/or many components disappeared? Have new ones been added that make the setting difficult to interpret (e.g. sightlines or paths have been broken or have disappeared)?

*High value (A):* The cultural history of the area is easy to interpret, making it possible to convey, understand and experience it.

*Low value (D):* The area has been affected in such a way that its cultural history is difficult to understand, and the setting cannot be communicated without extensive information efforts, such as in the form of old maps and pictures.

### 2. The setting has potential for extracting knowledge

If the area has a rich content of cultural and historical information, it can provide good opportunities for extracting knowledge. This refers to information that is not necessarily visible or otherwise possible to understand, but that can be gathered in the form of data that can be processed and interpreted. For example, this can relate to specific genetic plant material or a particular architectural design of green spaces. It may also include structures from earlier periods of park and garden design, such as walls, paths, edging stones, ponds, and water systems, which are currently hidden, but which could be uncovered through for example garden archaeological investigations.

*High value (A):* The setting has great potential for extracting new knowledge.

*Low value (D):* The setting is lacking or has only limited potential for extracting knowledge.

This parameter can be difficult to assess, in which case it should be left unanswered.

### 3. The setting reflects a shorter and limited period

Such a setting is characterised by the presence of many components typical of the period, with few components from other periods. This could for example be uniform genetic plant material conserved since the time of its creation, or an unchanged design of the area around a manor house with a park or garden.

In most cases, the setting will reflect either parameter 3 or 4 (below), which means that it should not normally be possible to assign a high value to the setting for both parameter 3 and 4. However in some cases, for larger areas, both parameters may be applicable.

*High value (A):* The setting is clearly dominated by components from a defined period. Few components have been lost and few new ones have been added, which means the setting has changed to only a limited extent.

*Low value (D):* The setting has few components from a defined period because they have disappeared, or new components have been added that cannot be related to the continued development. This means that the setting has changed to a large extent.

#### **4. The setting reflects a longer period (long continuity which can be perceived)**

The setting contains components from different periods which highlight how the area has been used and developed. New components have been added without erasing or distorting significant components from earlier periods. The setting has undergone obvious changes, often as additions, which contribute to the understanding of the development over time. These can be perceived almost as annual rings within the setting. An example might be a cemetery, where there are components from all periods, from a medieval design to a ring of trees dating from the beginning of the 1900s.

In most cases, the setting will reflect either parameter 3 (above) or 4, which means that it should not normally be possible to assign a high value to the setting for both parameter 3 and 4. However in some cases, for larger areas, both parameters may be applicable.

*High value (A):* The setting has components from all or most of its different formative time periods. None or few components from the different periods have been lost or distorted.

*Low value (D):* The setting lacks important components from all or most of its formative periods, making it impossible or very

difficult to discern in situ, the development of the cultural history over time.

#### **5. The setting is representative of a particular cultural and historical development process**

A characteristic setting has arisen because of a particular historic event or development and shares many features with other similar settings. It can therefore, act as a representative of the same kind of period of development. Examples include country estates from the end of the 1700s which often had an English landscape park added. Another example are the esplanades that began to be built in urban settings from the 1860s.

*High value (A):* The setting has many of the common features that can be found and expected in this type of cultural environment.

*Low value (D):* The setting lacks many of the common features that can be found and expected in this type of cultural environment or exhibits markedly different characteristics from other settings of the same or similar type.

#### **6. The setting is characteristic of the region**

The setting has a clear regional association and is characteristic of the region. This may for example, be in the form of a particular type of building or design of the setting that is only or primarily found within a limited geographical area, such as country estates with lime avenues in the Mälardalen area, pollarded willow avenues in the farming landscape of Skåne or birch avenues in some urban areas of northern Sweden.

*High value (A):* The setting is of a type that is or has been common in the region.

*Low value (D):* The setting has little regional association and is of a type that has few parallels in the region, historically or today.

### 7. The setting is a model or has had particular significance for the cultural and historical development

The setting may have served as a model, or example for, or otherwise been of particular significance for the cultural and historical development of the country and/or region. For example, the setting may reflect a new phenomenon or innovation, with subsequent dissemination. Such an example can be seen in the ironworks in Uppland which were designed in a particular way and became a model for other such facilities. It may also have been influenced by a particular event, person, or group of people that have had a decisive influence on parts of societal development, such as having been designed by an important architect.

*High value (A):* The setting has been a model and/or is influenced by a particular event, person, or group of people, of great significance for the cultural and historical development in a national or regional perspective.

*Low value (D):* The setting cannot be considered as a model and is not either associated with a particularly significant event, person, or group of people of great significance for the cultural and historical development in a national or regional perspective.

### 8. The setting is rare (priority parameter)

The cultural environment (the setting) is of a type or has values that have few or no equivalents in the country, region, or district. The cultural environment or parts of it, have always been rare (as opposed to representative, see parameter 5). The cultural environment may also be of a type that was common but has declined significantly in the country or region and is now one of the few remaining.

The fact that the cultural environment is now very rare, does not in itself mean that it is of greater cultural and historical value. However, it may be a reason to take special account of the cultural environment, simply because it is one of the remaining examples. This is therefore more of a question of assessing whether the cultural environment, and the associated values, should be given priority over other interests, rather than assessing the cultural and historical value of the setting itself.

High priority (A): The setting is of a type that has few equivalents in the country and/or region.

Low priority (D): The setting is of a type that is relatively common in the country and/or region.

### 9. The setting is under threat (priority parameter)

The setting and its cultural and historical values may be under threat in various ways. Threats may include the risk of becoming overgrown and abandoned or other negative changes in the cultural environment. In many cases, if such development has taken place or is allowed to go too far, the cultural and historical values of the setting may be partially or completely lost. A major deterioration of a cultural environment can also result in less willingness to invest in tree work because the future of the site is uncertain.

The fact that the setting is currently under threat does not mean that the site itself is more or less valuable. As with parameter 8, any threat is rather a question of prioritisation and balancing with other interests.

High priority (A): The setting and its cultural and historical values are under imminent threat from overgrowing or abandonment or other negative change.

Low priority (D): The setting and its cultural and historical values are not particularly sensitive to and/or are not threatened by overgrowing or abandonment or other negative change in the near future.

**10. Conditions for management are good (priority parameter)**

The setting is maintained according to the appropriate conditions and there is an organ-

isation or ownership which can be expected to ensure that the site continues to be maintained and can be sustained in the future.

High priority (A): The setting is maintained and has the potential for continued long-term management.

Low priority (D): The setting is not actively managed and the prospects for future management are uncertain.

<b>Evaluation of the cultural and historical values of the trees and tree components</b>		
<b>Trees affected by the proposed management</b>	<b>yes</b>	<b>no</b>
<b>Link between trees and setting</b>		
1. The tree or trees that are part of the tree component have a clear cultural and historical connection with the setting		
2. The tree or trees that are part of the tree component, through the choice of species/varieties and design, are an expression of the period in which the setting was established		
3. The tree or trees that are part of the tree component constitute an important part of the cultural environment		
<b>Characteristics of the trees, the tree component, and pruning</b>		
4. The tree or trees that are part of the tree component have been planted and managed with an intentional design or planted to commemorate an event or person		
5. The tree or trees are of a particular species, variety or clone that is of special importance to the design		
6. The species, variety or clone of the tree, the design, and pruning are specific to the type of cultural environment and may be characteristic of the locality/region		
7. The tree or trees have a clear sign of current or previous regular pruning		
8. The tree or trees that are part of the tree component have been planted and managed for practical or economic purposes		

## Link between trees and the setting

### 1. The tree or trees that are part of the tree component have a clear cultural and historical connection with the setting

The trees are part of the same cultural and historical context as the setting and are part of its formation and development, e.g. manor house – surrounding park, buildings – ornamental trees, working estates, industrial areas – avenues and parks.

### 2. The tree or trees that are part of the tree component, through the choice of species/varieties and design, are an expression of the period in which the setting was established

Trees and tree components may be typical of a period or a cultural environment in terms of the form and design, for example weeping trees, ornamental trees, avenues in country estates or esplanades. They may also be typical of a period or cultural environment in terms of the species or varieties chosen. Trees may have been replaced but with the same species/variety.

If the setting and its components reflect a particular period, it is particularly valuable if the tree or trees in the tree component are from the same period and have not been replaced. Note if this is the case.

### 3. The tree or trees that are part of the tree component constitute an important part of the cultural environment

Some trees or tree components are an important and distinctive part of the cultural environment. This could be for example specific trees at the entrance to a particular place, or trees that form an important part of the design of a square or open area. Without these trees, it would be much more difficult

to understand the cultural and historical context of the site, even if there are other components that also reflect this context. Examples of such tree components are esplanades or tree planting which creates a ‘green roof’ in open spaces.

## Characteristics of the trees, the tree component, and pruning

### 4. The tree or trees that are part of the tree component have been planted and managed with an intentional design or planted to commemorate an event or person

The tree or tree component is itself, or is part of, a deliberate design of the vegetation in the cultural environment, as evidenced and expressed by its location, choice of species or variety, and pruning. The trees and bushes create sightlines and spatial divisions. Examples include an avenue in an estate, a ring of trees around a cemetery, or trees in an urban park that create spatial divisions. Even a solitary tree can be a part of a deliberate design, such as an ornamental tree or a tree in the centre of a town square or other public space. The management may, however, have been neglected or changed, so that the character has changed e.g. that the tree or bush is no longer pruned to a specific form. The design or layout may in some cases be exemplary and, in some cases, associated with a particular garden or landscape designer.

Trees may also have been planted in a specific place in memory of an event or person.

### 5. The tree or trees are of a particular species, variety or clone that is of special importance to the design

Trees of a particular species, variety or clone can be an important part of the character of the site and can often tell us something about

the intention and thoughts behind the design. These may include trees with special branch angles, such as weeping trees or pyramidal-shaped trees. There may also be trees with distinctive leaf shapes and colours. If the trees have been replaced with other species, it may have an impact on the perception of the original design, e.g. where symmetry and uniformity have been and are important.

**6. The species, variety or clone of the tree, the design, and pruning are specific to the type of cultural environment and may be characteristic of the locality/region**

Examples include pollarded willows, pollarded limes in association with a manor house, or the selection of birch as an urban tree in certain locations in northern Sweden. These may be significant for the specific character of a geographical area and may reflect the cultural and historical development. Other examples include cherry tree groves, land that is or previously has been owned by noblemen or Crown land where oaks were conserved to a greater extent than elsewhere.

**7. The tree or trees have a clear sign of current or previous regular pruning**

Some trees or tree components have been pruned regularly according to a certain tradition or idea typical of a specific period to create a certain shape of the crown e.g., a flat canopy, straight sides or the appearance created by regular pollarding. As a part of traditional agriculture, trees have also been regularly pruned, for example by shredding or traditional pollarding, primarily to supply the household and which has created trees with a certain shape of crown.

**8. The tree or trees that are part of the tree component have been planted and managed for practical or economic purposes**

Many trees have been deliberately planted or nurtured and managed for practical or economic reasons, which may remain. Examples include shelter belts or trees which could prevent the spread of fire or to protect against lightning strikes, fruit trees and nut-bearing trees, or trees used for fodder production.

## NATURE CONSERVATION VALUES

<b>Evaluation of the nature conservation values of the environment</b> <b>This refers to the surrounding biotope or the ecological landscape of which the tree is a part</b>				
	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
1. The area has lots of trees with high conservation values				
2. The site is in a core area according to the green infrastructure network or it connects one or more core areas				
3. The area contains red-listed species				
4. The area has elements that favour red-listed species				
5. The area has a long continuity of trees				
6. The area has long-term ecological functionality				
7. The area is of a rare or declining biotope type				
8. Within the area, the density of trees with high conservation values is sufficient				
9. There is a varied age structure in the tree population				
10. Trees are standing in the open, free from the shade of small trees and scrub, and the area is regularly managed to keep it open				

### 1. The area has lots of trees with high conservation values

Large, old, or hollow trees provide habitats for other rare species, such as wood-living insects or lichens. The more such trees there are, the greater the potential for the site to contain red-listed species. There are two ways of obtaining information on this. Either you can search for trees with high conservation values (särskilt skyddsvärda träd) in the Swedish Species Observation System (Artportalen), or you simply look in the surrounding area for trees that meet at least one of the following criteria.

**Large trees.** Trees larger than one metre in diameter at the narrowest point below breast height.

**Very old trees.** Spruce, pine, oak, and beech older than 200 years. Other tree species older than 140 years.

**Large hollow trees.** Trees larger than 40 cm in diameter at breast height with a well-developed cavity in the main trunk.

*High value (A):* At least 3 large, old, or hollow trees within a radius of 50 metres from the centre of the area.

*Low value (D):* None or only a few large, old, or hollow trees within a radius of 500 metres from the centre of the area.

### 2. The site is in a core area according to the green infrastructure network or it connects one or more core areas

Many of the rarest species have difficulty travelling long distances. For dispersal to be possible, a certain number of trees with the right characteristics are needed within a certain distance. It is often said that species require a green infrastructure. If the area is part of a specific biotope and is situated within a landscape area where there are plenty of similar valuable habitats of the same biotope, this is known as a core area.

Most County Administrative Boards have identified the core areas for trees. You can see for yourself if the site is situated in a core area. Core areas may have different names depending on which county administrative board has developed them, but core areas for large, old, or hollow trees; oak or broadleaved woodland are common. You can find the extent of the core areas on the County Administrative Board's website. Search for 'green infrastructure'.

*High value (A):* The location in question is part of a core area for the biotope type the site represents.

*Low value (D):* The location in question is isolated and far from a core area for the specific biotope type.

### 3. The area contains red-listed species

The presence of red-listed species that are dependent upon trees in a site indicate high nature conservation values. Where red-listed species are present, there are usually many other species present that are not red-listed. Many of the red-listed species are hard to find and it often requires expert knowledge to determine which species it is. The site manager is not expected to do this in straight forward cases, but they can search for red-listed species in the Swedish Species Observation System (Artportalen) for the area, using the search function.

One should be aware that just because there are no red-listed species recorded, this does not mean that there are none in the area. These species can be difficult to find; for many sites, there may be no species records at all. This does not necessarily mean that the site has no red-listed species, but simply that nobody has investigated the site for these species yet. In this case, you can make a note of this under "notes" instead of filling in the table. It is up to those undertaking the assessment of the

parameters to judge whether supplementary surveys are required to provide a better basis for making a judgement on the matter.

*High value (A):* Several red-listed species are known from the area. Of these species, at least one is in the VU, EN or CR categories.

*Low value (D):* There are no red-listed species or only a few that belong to the category NT or DD. It is unlikely that in-depth species surveys will lead to the discovery of more red-listed species.

#### **4. The area has elements that favour red-listed species**

In addition to the trees qualifying as being of high conservation value (large, old, or hollow - see above), there may be other elements in the environment that enable it to support high biodiversity. These can include dead wood on the ground, in the crown of trees or as standing dead trees. Trees with coarse bark, fungal brackets, exposed wood, or sap runs are other elements which are important for many species. Flowering shrubs and herbs on the ground are important for many insect species that live as larvae in the wood of trees, and when they are fully grown adult insects, they need nectar and pollen to survive.

*High value (A):* The area has an abundance of trees with coarse bark, fungal brackets, exposed dead wood, or sap runs and there is dead wood both in the crowns of the trees and on the ground, as well as flowering herbs and bushes.

*Low value (D):* The area has no trees with coarse bark, fungal brackets, exposed dead wood, or sap runs and has very little dead wood and no flowering herbs or bushes.

#### **5. The area has a long continuity of trees**

Many species require or benefit from a long continuity of trees in the area (> 300 years).

In areas with a long continuity, the chances that many rare species can remain or re-establish are much higher than in areas where tree continuity has been broken. The term continuity here can be applied at several different scales. It can refer both to the area being assessed and to the surrounding landscape. There need not have been any continuity in the management of the area, only in the trees and their substrates. It may be difficult to find out how the area looked in the distant past, but in most cases, it is possible to find historical maps that are at least a hundred years old, sometimes even older. From these maps, it is possible to make an educated guess as to whether there were old trees in the area. A good place to start is the Lantmäteriet's (trans. note: national mapping agency) web site "Historical Maps".

*High value (A):* The area in question has a long continuity of large, old trees in the area and in the surrounding landscape. This means that large, old trees have been present on the area for at least 300 years.

*Low value (D):* The continuity of the area has been broken and there have been dramatic changes in the last hundred years, where almost all of the large, old trees have disappeared, or the area has historically had no large, old trees.

#### **6. The area has long-term ecological functionality**

Long-term ecological functionality means that an area has a good chance of maintaining its ecological function and retaining its important structures and species assemblages in the future. If an area is very small so that it is easily affected by its surroundings or if there are few young trees to take over from the old trees in the future, it often has low long-term functionality.

*High value (A):* The area is considered to have very good potential for long-term ecological functionality, which means that it will continue to provide habitat for its red-listed and/or typical species in the long term.

*Low value (D):* The area is considered to have no or very low potential to function as such a habitat in the long term, even if some mitigation measures are undertaken.

### **7. The area is of a rare or declining biotope type**

If the biotope was once more common but has declined to the extent that there are now relatively few areas left, it is normally particularly important to conserve all remaining areas. In this context, a biotope type refers to an ecological habitat, such as areas with oak, regardless of whether it is in a public space with trees, such as oaks in parks and avenues, or another type of setting, such as oaks in wood pastures.

*High value (A):* This type of biotope has greatly declined in a national or regional perspective and there is now a general lack of this biotope.

*Low value (D):* This biotope has generally not significantly declined and is still relatively common today, although there may have been local declines.

### **8. Within the area, the density of trees with high conservation values is sufficient**

The denser the large, old, and hollow trees are positioned on the site, the easier it is for insects, but also lichens and fungi to disperse between the trees. The higher the density of the trees, the greater the chance that species can spread to new trees, but also for individuals on different trees to swap places creating a more stable population.

*High value (A):* The trees with high conservation values (large, old, and hollow trees) in the area are less than 50 metres apart.

*Low value (D):* The trees with high conservation values (large, old, and hollow trees) in the area are more than 1500 metres apart.

### **9. There is a varied age structure in the tree population**

An area rich in both species and with a varied age structure can support more species. Different species are specialised to different structures found within the trees. The more varied the age structure of the tree population, the greater the chance that there will be a greater variety of different tree habitats within an area. Having multiple species of trees is also likely to result in an increased biodiversity, provided there are enough individuals of each tree species to support the associated specialised species.

*High value (A):* The trees in the area are of different species, with each species present in all age classes, from young seedlings to old trees that have developed into trees with high nature conservation values (large, old, or hollow trees).

*Low value (D):* The trees in the area are of only one species and one age class.

### **10. Trees are standing in the open, free from the shade of small trees and scrub, and the area is regularly managed to keep it open**

Trees that are open-grown develop structures such as extensive crowns with large branches, that benefit many species that live in the trees. In addition, many of the species associated with trees with high conservation values are favoured by warmth. Bushes and low ground vegetation are beneficial to the trees and their inhabitants. The trees are standing in the

open because humans have kept the vegetation around the trees in check, such as by park management (for lawns and flowerbeds), but grazing and regular clearance of road verges are other examples of management.

*High value (A):* The area is kept open, and the trees are open-grown and have developed

large crowns. The area has also always been kept open historically.

*Low value (D):* The area is not open and has never been open, and the older trees are shaded by younger trees and scrub. The trees have been affected by this and the crowns are high up with few or no lower branches.

<b>Evaluation of the nature conservation values of the trees and tree component</b>		
<b>Trees affected by the proposed management</b>	<b>yes</b>	<b>no</b>
1. The tree has trunk cavities		
2. The tree is over one metre in diameter at breast height		
3. The tree is old (more than 200 years for oak, beech, pine, and spruce or more than 140 years for other tree species)		
4. The tree is home to red-listed or indicator species		
5. The tree has coarse bark, exposed wood, or extensive sap run		
6. The tree is a monolith or contains a lot of dead wood		
7. The tree has fungal brackets or other wood-living fungi		
8. The tree species is red-listed		

### 1. The tree has trunk cavities

Many wood-living insects, as well as many birds and bats live inside tree cavities. Many of these species live in the soil-like wood mould that is found within the cavities.

Wood mould consists of decomposed wood and the remains of leaves, twigs, and animals. Cavities refer to entrance holes in the wood. Damage to bark that has callused over, shallow woodpecker marks, ripped or broken branches are not considered to be holes.

### 2. The tree is over one metre in diameter at breast height

There is a correlation between how large the tree is and the number of different structures the tree has developed, and which different species can inhabit. Trees larger than one metre in diameter at breast height, equivalent to 314 cm in circumference, are particularly valuable. Measure the tree with a tape measure. There are special tape measures designed for measuring the circumference trees, but it is not necessary to use these for measuring the tree.

### 3. The tree is old (more than 200 years for oak, beech, pine, and spruce or more than 140 years for other tree species)

For a tree to be considered as old, it needs to be more than 200 years for oak, beech, pine, and spruce or more than 140 years for other tree species. There is a relationship between the age of the tree and the number of different structures that the tree has developed for different species to inhabit. Even small diameter trees that are old can develop these structures, such as pollarded trees or trees that have grown in nutrient-poor soils.

It is often difficult to judge how old a tree is, so one should look for clues in the history of the area instead. Is there any written infor-

mation about when the trees were planted? Do they appear on old maps? Do they appear in any descriptions?

### 4. The tree is home to red-listed or indicator species

A good way to find out if there are red-listed species on the trees is to go into the Swedish Species Observation System and search for records of red-listed species from the area.

Sometimes it is difficult to find the red-listed species and expensive surveys may be required. Instead, look for species that are easy to find, and where you know that if you find these species (known as indicator species), there are also usually red-listed species. Sweden's indicator species are compiled in the (Swedish only) book 'Valuable woodland. Indicator species and other criteria for nature conservation assessments' (original title: 'Skyddsvärd skog. Naturvårdsarter och andra kriterier för naturvärdesbedömning').

### 5. The tree has coarse bark, exposed wood, or extensive sap runs

Coarse bark, exposed wood, or extensive sap runs are structures that benefit many different species in different ways.

Coarse bark means that the bark ridges are at least two centimetres deep. The coarser the bark, the more different types of mosses, but primarily lichens, can be found on the tree.

Exposed wood means that the bark has fallen off a part of the trunk, and the exposed, dry trunk wood can be seen. The exposed wood is used by many insects, for example to lay their eggs.

Sap runs are where the sap runs out onto the trunk from a wound on the tree. The sap is sweet and at night, it attracts many insects that use the sap as a source of food. Sap runs

look like a long, narrow dark area on the trunk.

#### **6. The tree is a monolith or contains a lot of dead wood**

Dead wood can be found in different forms on the tree. The most valuable is the standing dead wood in the form of a monolith (standing dead tree), but also dead wood in the crown of live trees is extremely important, both larger and smaller branches. To answer yes to this point, the whole tree must be dead, a monolith or there should be more than 30% dead wood in the crown.

#### **7. The tree has fungal brackets or other wood-living fungi**

Fungal brackets or other fungi that grow on trees may be large or small. They are most often found on the trunk or larger branches but may also be found on smaller branches. Cavities in trees are usually caused by one or more fungal species decaying the wood

inside the tree. The mycelium of the fungus is responsible for this process and fungi are therefore important for creating cavities on the tree. The fruit body or bracket is also important as a habitat or food for several animals. All fungal brackets or fruit bodies on the tree should be noted down.

#### **8. The tree species is red-listed**

A few tree species are red-listed in their own right. These are particularly important to conserve, if possible, because there are several species of insects, mosses, and lichens that are associated with specific tree species. If these tree species disappear from the landscape, the species associated with them will have difficulty surviving. Examples of red-listed tree species are ash and elm, which have unfortunately been severely affected by tree diseases. On the Swedish Species Observation System's website, you can search for different species to find out if they are red-listed.

## SOCIAL VALUES

<b>Evaluation of the social values of the setting</b>				
<b>This refers to the place and surroundings in which the trees are a part, as it is experienced by people.</b>				
	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
1. The area is visited or passed by many people				
2. The setting provides opportunities for contemplation, mourning, reflection, and recovery				
3. The setting is shielded from disturbing influences in the surroundings				
4. The setting provides opportunities for recreation, exercise, and social interaction				
5. The setting provides opportunities for aesthetic experiences				
6. The setting conveys a sense of identity or belonging				
7. The setting provides a sense of security				
8. The setting is accessible				
9. The setting is rare				
10. The setting is close to an urban area and is also one of only a few green spaces				

### 1. The area is visited or passed by many people

The more people that use an area, the more important it is from a social perspective. Examples of well-frequented areas or areas where many people pass include roads and squares, but also centrally located churchyards and parks.

*High value (A):* The area has a high number of visitors in relation to the local population and/or is passed by many people on a daily basis.

*Low value (D):* The area has few visitors and/or is passed by only a few people.

### 2. The setting provides opportunities for contemplation, mourning, reflection, and recovery

For many people, cemeteries, but also for example hospital parks, are important places for reflection and mourning. Different factors in the design of the setting, such as the presence of old trees, affect the harmony, calm, and peacefulness of the setting. Studies have shown that views of trees from, for example, hospitals and schools can also have positive health benefits.

*High value (A):* The setting has the right conditions for and is used daily or very often for contemplation, mourning, reflection, and psychological or mental recovery.

*Low value (D):* The setting lacks the right conditions and is never or rarely used for these types of activities.

### 3. The setting is shielded from disturbing influences in the surroundings

An area that is shielded from, for example, visual disturbance or noise from the surrounding environment provides better conditions for relaxation, recreation, and contemplation. Geographical location is of course

important, where for example an area near an airport, is rarely free from disturbance. However, the design of the area, with for example protective tree and bush shelter belts is also important.

*High value (A):* The area is quiet and shielded from disturbing sights, smells, or sounds in the surrounding area.

*Low value (D):* The area is highly disturbed by sights, smells, or noise from the surroundings.

### 4. The setting provides opportunities for recreation, exercise, and social interaction

The geographical location, content and design of an area can encourage social gatherings, spontaneous sporting activities, picnics, relaxation, and other activities to varying degrees. For children, the fact they can climb, play, and move around freely in the area is a great asset.

*High value (A):* The area has high recreational value, is an important place for social gatherings and/or provides opportunities for exercise and is used in this respect on a daily or very frequent basis.

*Low value (D):* The area lacks good opportunities for recreation, exercise, and social gatherings and is never or rarely used for these activities.

### 5. The setting provides opportunities for aesthetic experiences

The design of the tree elements and even the character of individual trees – whether deliberately designed or not – can provide aesthetic experiences.

*High value (A):* The area has very high aesthetic values. It contains exciting and/or remarkable elements or is rich in variety. The area is well maintained, has artistic elements and/or is distinguished by outstanding architectural design.

*Low value (D):* The area has no aesthetic value and/or is relatively homogenous in design. It provides no or very unclear aesthetic experiences and has no clear architectural characteristics in relation to the surrounding 'everyday landscape'.

## **6. The setting conveys a sense of identity or belonging**

Certain settings or features, such as avenues with old trees or a medieval church in the countryside, can convey a sense of identity and belonging. Particularly when the trees in these settings are old and large, they can provide a sense of continuity in a rapidly changing society. For many people, places with old trees can also have important symbolic value. This experience is not always dependent on being in the area itself but can be enjoyed even from a distance.

*High value (A):* The setting is important for many people's identity and conveys a sense of continuity and belonging. This often takes the form of a high level of public involvement in actions that significantly change the setting.

*Low value (D):* The setting has no obvious symbolic value or values that convey belonging and is unlikely to generate public involvement if changed.

## **7. The setting provides a sense of security**

The appearance of the site and its immediate surroundings and the people who use it are factors that can, in different ways, affect how safe people feel. Perceived safety is influenced by how easy the site is to interpret and comprehend. For the visitor to have a good overview of the site and a sense of control, lighting and deliberate design of the vegetation are required to contribute to good visibility. The character of the vegetation and how well it is

managed are also important, as many people associate litter, vandalism, and low levels of management with feelings of fear.

*High value (A):* The setting conveys a high degree of a sense of security. It is normally well managed, not too secluded, well-lit, and has good visibility.

*Low value (D):* The setting is avoided by many, especially when it is dark, due to for example previous criminal activities, secluded location, poor lighting, or visibility.

## **8. The setting is accessible**

The proximity and accessibility of a green space are important conditions for the social value of an area, especially for people with different types of disabilities and children. This includes how easy it is to get to the area and find one's way around, if there are seating areas and how accessible the area is. Various types of facilities such as toilets, car parks, picnic tables, and signposted footpaths make it easier to visit. Access to recreational areas is essential for health and well-being.

*High value (A):* The area is located in or within one kilometre of a town or major urban area and there are few or no similar urban green spaces within the same distance. The site is very accessible and there are few obstacles such as uneven surfaces or large differences in levels. There are various types of facilities.

*Low value (D):* The area is significantly more than one kilometre from an urban area and there are plenty of other green spaces within closer reach. Accessibility to and within the site is poor, which prevents a large part of the population from spending time there.

## **9. The setting is rare**

If the type of setting the area represents is rare or in decline, there is value in conserving

the remaining areas with social values. For example, it could be the only site in an urban area with large trees, the only park with green space for play, or the only cemetery with space for privacy and peace.

*High value (A):* This type of setting with associated social values is declining or has been rare for a long time. There are currently no or very few areas with similar social values within a reasonable distance.

*Low value (D):* Other areas with equivalent social values are relatively common within a reasonable distance.

The setting is close to an urban area and is also one of only a few green spaces

The proximity of green spaces is an important condition for the social value of the area and is also important from a child's perspective. The fewer other recreational areas there are in or near a residential area or an area where many businesses are located, the more important it is that the social value of the area is given priority when planning management.

*High value (A):* The area is located in or within one kilometre of a town or major urban area and there are few or no similar urban green spaces within the same distance.

*Low value (D):* The area is significantly more than one kilometre from an urban area and there are plenty of other comparable green spaces within closer reach.

## Evaluation of the social values of the trees and tree components

Trees affected by the proposed management	yes	no
1. The tree or trees as a part of a tree element is known and well-visited		
2. The tree creates a sense of identity or has great symbolic value		
3. The tree or trees within a tree element is important for the spatial perception of the site		
4. The tree or trees within a tree element is an important part of the view for many people		
5. The tree or trees within a tree element is an important play or recreation area		
6. The tree or trees within a tree element have high aesthetic values		
7. The tree or trees within a tree element contributes to creating a place that is sheltered from the wind, sun or provide privacy		
8. The tree is unusually large or very old		

**1. The tree or trees as a part of a tree element is known and well-visited**

Trees or tree elements that are known and well-visited automatically have high social values, as these places are clearly important for people.

**2. The tree creates a sense of identity or has great symbolic value**

Around the country there are many trees that create a sense of identity or have great symbolic value, such as open-grown trees, or trees that are associated with a particular atmosphere or experience, such as characteristic trees along roads, in squares and other public places.

**3. The tree or trees within a tree element is important for the spatial perception of the site**

A large solitary tree in the middle of an open space or an avenue that creates sightlines, affects the spatial perception. This is particularly noticeable when the trees are removed, and the area can suddenly be perceived as being bare or exposed. Sometimes trees can also create their own spaces, for example avenues surrounding an area with graves in a cemetery.

**4. The tree or trees within a tree element is an important part of the view for many people**

Studies show that being able to see trees and green spaces has a positive impact on human health. If many people can see the tree, for example from a hospital, nursing home, school or their home, the tree has a higher value than if no-one or only few people can see the tree.

**5. The tree or trees within a tree element is an important play or recreation area**

Trees that provide opportunities for play or recreation can be very important, especially for children. Trees, especially those with distinctive shapes, can be inspiring and stimulating for the imagination and thus contribute to play and recreation. Many people also find it peaceful and restorative to just lean against a tree.

**6. The tree or trees within a tree element have high aesthetic values**

Unusual trees and trees with distinctive shapes, or beautiful colours often arouse curiosity and are appreciated for their beauty. For example, trees with extensive crowns, trees with a special leaf colour, flowers or trees that attract attention due to how they have been pruned or pollarded.

**7. The tree or trees within a tree element contributes to creating a place that is sheltered from the wind, sun or provide privacy**

An area with trees that provide shelter from the wind, strong sun, disturbance, or unwanted influences from the surroundings are not only beneficial to human health but can also make the place suitable and valuable for social gatherings.

**8. The tree is unusually large or very old**

Large and old individual trees have been shown to evoke particularly strong emotions and contribute to the sense of antiquity and continuity of the site.

**STEP 4****Need for a legal assessment**

The site manager or practitioner needs to investigate whether specific legal regulations apply in the area and find out what management actions the legislation allows. Those involved in the process often have knowledge and experience of what is appropriate in each case.

**STEP 5****Proposals for possible management options based on the problem, conditions, legislation, and values**

Once all the values have been identified and it is clear what regulations apply in the area, it is up to the site manager or practitioner to propose the possible management options.

Presenting different possible management options reduces the risk of overlooking other, perhaps more long-term sustainable solutions.

The following list can be used for this step:

- describe the ‘do-nothing’ alternative, i.e. what happens if nothing is done,
- describe different possible solutions to address the problem based on the characteristics and conditions of the site,
- indicate the advantages and disadvantages of the different solutions and how they affect the cultural and historical, nature conservation and social values of the area,
- describe whether the different solutions are compatible with any regulations that may apply in the area and, if so, what could justify a permit or exemption from these regulations.

**STEP 6****Selection of the most appropriate management**

It is now time to select and describe the most appropriate management option. This should be the option that best respects the values of the site and the regulations that apply to it, whilst also being cost-effective and sustainable in terms of long-term management. It is important to demonstrate how the chosen management option will lead to the achievement of the objective described in step 1.

Although the aim with the ‘Striking a Balance’ Model is to find solutions that benefit or at least consider all tree values as much as possible, in some cases priorities need to be set between different values. Using the completed tables, it is easier to find consensus on how to prioritise between different values in each case.

The assessment of the parameters is not a simple scoring exercise, where the aspect with the highest score wins and automatically becomes the one that is given the greatest priority. The checklists for the different values are not designed in such a way as to be directly comparable and the order of the parameters in the table does not reflect their relative weight. It is also not certain that the value of the area increases with the number of parameters met. The checklists are intended to provide a factual basis for understanding the values of the setting. The tables are primarily intended to provide a factual basis for further discussion on the appropriate design of the management options.

### **STEP 7**

#### **Submit an application**

If a legal assessment is required, an application should be submitted to the appropriate authority (if no assessment is required, proceed directly to step 9, i.e. implementation of the management option).

### **STEP 8**

#### **Case management by the appropriate authority**

The authority now begins work dealing with the case.

### **STEP 9**

#### **Implement the management**

The practical details should preferably be shown to the person responsible for implementing the management options.

## References

- Boverket. 2018. Ekosystemtjänster i detaljplanläggning. [https://www.boverket.se/sv/PBL-kunskapsbanken/Allmant-om-PBL/teman/ekosystemtjanster/metod\\_planering/dp/](https://www.boverket.se/sv/PBL-kunskapsbanken/Allmant-om-PBL/teman/ekosystemtjanster/metod_planering/dp/) (Ecosystem services in local development planning).
- Green Cities: Good Health (2022). *Green Cities: Good Health*. Tillgänglig via : [https://depts.washington.edu/hhwb/Top\\_Introduction.html](https://depts.washington.edu/hhwb/Top_Introduction.html)
- Höjer, O. & Hultengren, S. 2004. Åtgärdsprogram för särskilt skyddsvärda träd i kulturlandskapet. Rapport 5411. Naturvårdsverket, Stockholm. <https://www.naturvardsverket.se/Documents/publikationer/620-5411-2.pdf> (Action Plan for trees with high conservation values in the rural landscape).
- Jansson, M. 2012. "Kunskapssammanställning". I Hela staden – argument för en grönbå stadsbyggnad. Stad och Land Nr 183. Movium, Sveriges Lantbruksuniversitet, Alnarp. <http://www.movium.slu.se/system/files/news/9265/files/helastaden-1.pdf> (Compilation of current knowledge". The city in its entirety – arguing for green-blue urban development).
- Plattform Kulturhistorisk värdering och urval: grundläggande förhållningssätt för arbete med att definiera, värdera, prioritera och utveckla kulturarvet. 2015. Riksantikvarieämbetet, Stockholm. <http://urn.kb.se/resolve?urn=urn:nbn:se:raa:diva-3451> (Platform for Cultural and Historical Assessment and Prioritisation).
- Svensk standard · SS 199000:2014, Naturvärdesinventering avseende biologisk mångfald (NVI) – Genomförande, naturvärdesbedömning och redovisning (Biodiversity Survey – implementation, assessment and reporting).
- Sörensson, M. 2008. "AHA – en enkel metod för prioritering av vedentomologiska naturvärden hos träd i sydsvenska park- och kulturmiljöer". I Entomologisk tidskrift 129(2): 81–90. (AHA – a simple method for evaluating conservation priorities in South Swedish parks and urban areas from a saproxylic insect viewpoint).

This is the English summary of the method Striking a balance.

Trees in public places, such as cemeteries, avenues, parks, public gardens, and other public open spaces are valuable from many perspectives. They have high natural, cultural, and historical values and can be important for human health and quality of life.

Many different stakeholders with different competences come together around these trees. All the different stakeholders have different frames of reference, terminology, and approaches. This may lead to conflicts and ultimately the implementation of less suitable management in the area. To ease cooperation and to get the best possible outcome, several public authorities, and organisations in Sweden have joined forces to develop this model to clarify the value of the trees before planning any management.

*Fria eller fälla är ett resultat av ett samarbete mellan följande myndigheter och organisationer:*

Riksantikvarieämbetet [www.raa.se](http://www.raa.se)

Naturvårdsverket [www.naturvardsverket.se](http://www.naturvardsverket.se)

Trafikverket [www.trafikverket.se](http://www.trafikverket.se)

Länsstyrelserna [www.lansstyrelsen.se](http://www.lansstyrelsen.se)

Svenska kyrkan [www.svenskakyrkan.se](http://www.svenskakyrkan.se)

Sveriges lantbruksuniversitet [www.slu.se](http://www.slu.se)

Föreningen Sveriges kyrkogårdschefer [www.fsk.hemsida.eu](http://www.fsk.hemsida.eu)

Föreningen Sveriges stadsträdgårdsmästare [www.stadstradgardsmastare.org](http://www.stadstradgardsmastare.org)



Sveriges lantbruksuniversitet  
Swedish University of Agricultural Sciences  
- kunskap för en hållbar utveckling