

Tree Risk Management – A Proactive Approach to a Comprehensive Tree Management Strategy

Legal Requirements and Responsibilities

There are many reasons why duty holders (landowners and land managers) want to manage their tree stocks. These include the risk of personal injury and death through falling trees, the risk of property damage from falling branches or from subsidence, providing shelter for stock and maintaining a pleasant environment for residents and visitors. For these reasons, tree inspections are undertaken, which ensure that landowners/managers have complied with the reasonable & practicable requirements of the law.

Under both civil and criminal law, the owner of land on which a tree stands has responsibilities for the health and safety of those on or near the land and has potential liabilities arising from the falling of a tree or branches from a tree. Civil law gives rise to the duty and potential liability to pay damages in the event of a breach of those duties, whilst criminal law gives rise to the risk of prosecution in the event of an infringement of the criminal law.

All landowners therefore have a statutory duty of care to ensure (as far as is reasonably practical) that every asset, including the trees located on their Estate, is unlikely to cause harm.

In practice, this requires a balance between the interests of the owners of trees, those of the people that may be harmed by them and those of the public. It is not possible to ensure complete and guaranteed safety unless no trees are present.

The following strategy follows good industry practice to ensure that any risk from trees is kept as-low-as-reasonably-practical (ALARP).

The primary means of managing the risk from trees is the implementation of a regime that evaluates and inspects trees on a regular basis to determine their safety.

Much of the background information concerning the subject of tree inspections is based on the “Common sense risk management of trees” document, published by the National Tree Safety Group (NTSG) in 2011. The NTSG is made up of 21 different groups comprising professional bodies, tree owners and managers, organisations with heritage and/or conservation interests and risk research consultants. and following consultation, guidance was issued.

‘The guidance issued is to be used as a basis for investigation and interpretation and the evaluation of what is reasonable should be based upon a balance between benefit and risk’ (NTSG 2012). The methodology illustrated by NSTG 2012 is shown in Fig 1.

Risk Management Process

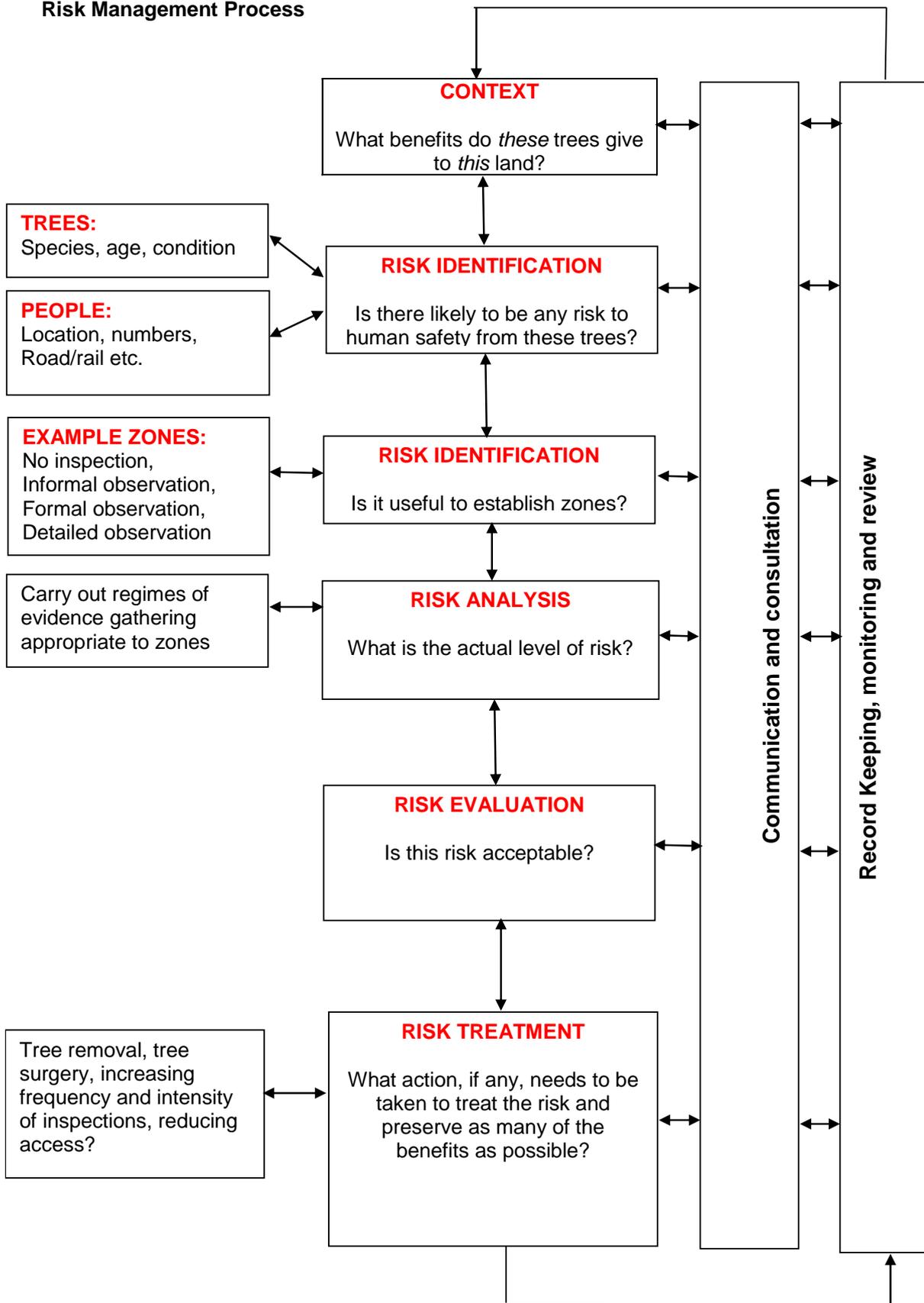


Figure 1. Risk Management Process “Common Sense Risk Management of Trees” NTSG 2012

Objectives of Tree Risk Management

Trees are a very important part of the overall landscape and their presence has many different benefits depending on how the land is used and where they are situated. An important part of land management must be the impact and risk it has on the human population. Tree felling is an emotive subject, so the measures that are taken must comply with current legislation but also be in context with the location and the number of people who could potentially be harmed, against what is reasonable and practicable to protect and manage the tree.

Trees grow in many different situations, and within areas of widely varying levels of public access and other human activity. Where it is appropriate to manage trees, this management should seek to enhance the significance (in terms of value, access and other benefits) and all the other ecosystem service, biodiversity and social benefits they provide, and to manage the undesirable impacts they can have (such as damage to property and risk to human safety). Whilst the overall risk to human safety is extremely low, representing about a 1 in 10 million chance of an individual being killed by a falling tree (or part of a tree) in any given year (equating to between 5 and 6 people/year in the UK), the risk perception considerably rises when an incident does occur.

In order to reduce this risk, tree owners, landowners and land managers are required to “take a balanced and proportionate approach to tree management”. This is generally through establishing an operating procedure concerning their trees and a methodical approach to inspection, recording findings and carrying out remedial treatments. In law, it only requires tree owners/managers to “take reasonable care to avoid acts or omissions which cause a reasonably foreseeable risk of injury to persons or property” by establishing a balanced and reasonable approach to trees and their management this can be achieved.

Legal Aspects

The Health and Safety at Work Act 1974, places a duty on employers to ensure, so far as is reasonably practicable, that in the course of conducting their undertaking, employees and members of the public are not at risk (Sections 2(1) and 3(1) respectively and self-employed persons in section 3(2)). Tree inspections and works clearly fall within the scope of this duty.

The duty is subject to the words “so far as reasonably practicable” and this should be addressed by the employer/land owner as to what is a practical and proportionate precaution that could be taken to avoid a risk. This would be in the form of risk assessments and tree inspections. This does not mean that all trees must be individually examined on a regular basis, but a reasoned decision must be taken on what is reasonable in all circumstances and this will include the consideration of the risks that people are exposed to.

Tree Risk Management Process

The following approach has been devised as an appropriate regime for tree safety management. This process should guide management decisions and practice, in a reasonable and cost-effective way and should cover the following:

- **Step 1: Estate Policy.** A simple policy document needs to be in place identifying what the Estate intends to do to manage the risk posed by trees.
- **Step 2: Zoning.** Identification of the risks posed by trees in relation to people and property.
- **Step 3: Tree Inspection.** Assessing obvious tree defects through an agreed inspection regime and at a frequency determined by the zone the tree is in.
- **Step 4: Managing risk at an acceptable level:** Identifying, prioritising and undertaking safety work according to level of risk and within a specified time scale.
- **Step 5: Record Keeping**

In order to accurately zone areas and to address inspection frequency, the **Hazards** and **Risks** within these areas should be evaluated.

- A **Hazard** is the situation or condition with the potential to cause harm. This means that any part of the tree – its trunk, branches or crown is a hazard that can fall and cause injury to persons or damage to property. All trees have the potential to cause harm and they and their component parts are a hazard.
- The **Risk** is the level of likelihood that a hazardous tree will cause actual damage or harm. Risk is related to the location of the tree and reflects the intensity of use in its immediate vicinity and the proximity of trees to roads, car parks, buildings or other occupied locations.

Step 1: Estate Policy

This is a simple document which identifies what the estate intends to do to manage the risk posed by its trees and how it will go about it.

Step 2: Zoning

This is a process where areas of land are defined according to their level of use and tree stock present. For a programme of tree inspections to be manageable, resources need to be directed primarily to areas where the risk to persons and property are potentially highest. Areas are designated initially into areas of **HIGH, MEDIUM, or LOW** risk.

- **HIGH RISK ZONES:** Close to high use areas, locations with significant public access, work yards, occupied buildings, busy and main roads, car parks, major footpaths, picnic areas etc.

- **MEDIUM RISK ZONES:** general tracks within the estate, other footpaths and bridleways in regular but not intensive use by the public, less busy public roads etc.

All other areas containing trees will therefore be found in the **Low Risk Zone** and do not need to be subject to recording or programmed inspections, only informal observations. Management of any hazardous tree within these low risk areas will be through normal estate fault reporting procedures.

Whilst the **HIGH** and **MEDIUM** Risk Zones should reflect the “normal” usage of each area, the usage may change over time or for particular events.

Examples of Zones of Risk

The level of risk associated with the trees on an Estate will vary with their condition and size but will also vary with the public usage and surroundings of their location.

The zones of risk are classified as High, Medium and Low and examples are detailed in the table below with guideline inspection frequencies: -

RISK ZONE CATEGORY	INSPECTION FREQUENCY & TYPE
<u>High Risk (suggested Red)</u> <ul style="list-style-type: none"> • Schools • Playgrounds & play areas • Public car parks • Arterial road traffic routes and pedestrian pathways • Emergency facilities • Trees near railway lines • Trees within the influencing distance of estate owned property • Preferred emergency access routes • Work depots • Very high use Public rights of Way 	<p>Routine – Every year and after exceptional weather conditions, e.g. storms. Detailed – Every 3rd year</p>
<u>Medium Risk (Blue)</u> <ul style="list-style-type: none"> • Secondary roads • Internal roads and tracks • Other Public rights of way (including bridleways and footpaths) • Heavily used woodland areas 	<p>Routine – Every 2 years and after exceptional weather conditions, e.g. storms. Detailed Every 3rd Inspection (6 yearly) and those trees that require a second professional opinion after being identified during routine inspections.</p>
<u>Low Risk (Not to be recorded)</u> <ul style="list-style-type: none"> • Rest of Estate - No Zoning Required 	<p>No planned inspections. Routine / Detailed - those trees that require a second professional opinion after being identified during informal observation.</p>

Details and examples to be collected during Tree Inspections

- **Zone Name:** Descriptive name of location within Estate
- **Zone No.:** Number on Tree Management Register
- **Inspection type:** Routine / Detailed, to be ticked
- **Risk Zone:** High / medium risk, to be ticked
- **Inspectors Name:** Name of Inspector

- **Grid ref. from:** Grid reference for start of Zone
- **Central Grid Ref:** Additional grid reference to delineate extent of zone if necessary
- **Grid Ref. to:** Grid reference for end of Zone
*It is essential that all grid references are recorded, to ensure all required trees within any one zone are captured by inspections
- **Date Completed:** Actual date when inspection was completed
- **Time taken:** Time taken to complete entire section
- **Weather Condition:** Sunny, overcast, raining, foggy, windy etc.
- **Tree No.:** Refers to individual tree number used on ground (painted or tag)
- **Grid Ref:** Grid reference of individual tree
- **Species:** Botanical or Common name
- **Age Class:**

Y	Young
SM	Semi-Mature
M	Mature
OM	Over Mature
- **Condition / Comments:** Description of perceived faults, to include:
 Dead Wood Present (minor, medium, major)
 Significant Ivy Growth
 Split Limbs (number of)
 Die Back (minor, medium, Major)
 Fungal Fruiting Body Present - identify
 Hung up Limb/s (number of)
 Dead
 Crown Decline
- **Recommendations:** Detail what action to take next, to include:
 Fell
 Remove dead wood
 Kill ivy growth
 Reduce crown by 2m and balance to reduce wind loading etc.
- **IH / BIS:** Can work be carried out by in-house staff or will it require a bought in service (contractor)?
- **Health and Safety Risk Category:** Severity of problems prioritized by H, M or Low risk which will identify time duration to carry out remedial work.
- **Likelihood of Bats Being Present (1):** Judgment of likeliness of bats being present categorized as high, medium or low.
- **Likelihood of works impacting on them (2):** Will the work being recommended have an impact on those bats considered to be present, categorized as High, Medium or Low.

This zoning process is usually a desk top exercise informed by someone with extensive knowledge of the estate and its use. The High and Medium risk zones should be colour coded by risk factor and identified on a map, with each zone given its own unique reference number. These Zone reference numbers should then be compiled within a Tree Management Register, which allows for forward inspection planning to form an integral part of the estate's defensible tree management strategy.

An annual review of the risk zoning should be carried out. This review will consider the current and immediate future usage of the estate by all users. Where increased (or decreased) risks are identified and agreed, the zoning map and TMR should be adjusted accordingly.

Step 3: Tree Inspection

Once the risk zoning mapping and tree management register production exercise has been completed, all trees identified in the High and Medium risk zones will be subject to planned inspection programmes, where obvious tree defects and remedial works are recorded through an agreed inspection regime and at a frequency determined by the zone the tree is in.

Inspection Frequency

The level and frequency of inspections is determined by local site specifics including scale, species, age and location of trees, potential targets, previous inspection regimes and availability of in-house staff to carry out routine inspections. As a general rule if no inspections have ever been carried out then a base line survey of all the zones at a Detailed Level in year 1 is advised from which a programme of ongoing inspections can be planned.

An example of inspection frequencies is given below whereby some recent detailed inspections have been carried out on high risk zones and in-house staff are available to deliver routine inspections and a base line inspection of all zones at routine level has been agreed.

- **HIGH RISK ZONE:** A routine inspection of every tree within the zone is to be carried out every year (by a competent person) with a detailed inspection carried out every third year (3 yearly) by a qualified person, unless an earlier requirement is identified during a routine inspection or through formal observation. After repeated inspections over a period of time, these frequencies can be extended as the historic tree defects will have been addresses and an element of preventative work will have been carried out.
- **MEDIUM RISK ZONE:** A routine inspection of every tree within the zone, carried out every 2 years (by a competent person) plus the continued addition of individual trees being highlighted for follow-up detailed inspections as required, with a detailed inspection carried out on all trees within zone every third inspection (6 yearly).
- **LOW RISK ZONE:** No formal planned inspections are carried out for these zones; however, they are covered by informal observations.

Inspection Regime

- The inspection is a Visual Tree Assessment (VTA), always carried out on foot.
- A systematic diagnostic approach will be followed throughout the inspection – looking at the immediate vicinity around the tree, the root system, the trunk, the crown and all significant defects along with recommended remedial work will be recorded.

- Reporting will be by exception only – only trees found to be defective will be identified and recorded.
- Appropriate hard copy inspection or digital forms should be used.
- All obvious defects should be recorded, with a defect being defined as “in the context of the growing environment of a tree is a structural, health or environmental condition that could predispose a tree to failure”.
- In practice, only visible defects are likely to be recorded. Techniques available to assess the structural integrity of the tree, such as electronic sensors and hand operated borers, will not be used. However, where a further assessment of decay is required, in the case of particularly important trees, then this can be prescribed on the inspection sheet.

Where possible, an element of seasonality is to be included in the scheduling of the tree inspection, so trees are not always inspected in the same season (i.e.: summer – in full leaf: Winter – no foliage).

Inspection Types

- **Informal Observations:** These are carried out by estate employees, users, tenants and visitors in the respect that if a perceived tree hazard is spotted whilst carrying out normal daily duties, it is reported to the appropriate persons as soon as reasonably practicable.

These observations are acknowledged as being one of the main contributors to historic tree safety across the UK, however, whilst this may identify a potential problem, the observation should be followed-up as soon as reasonably practicable and where necessary, a planned formal inspection should be scheduled.

Regular workplace talks should be planned for the most appropriate estate staff, so they can be made aware of potential tree issues that highlight tree health and condition and identify the structural weaknesses that can pose a threat to employees, users and visitors.

- **Formal Inspections and Competence of Inspectors:** These are where a tree is visited for the specific purpose of performing an inspection that is not incidental to other activities and has been specifically planned. These inspections clearly demonstrate proactive tree safety, and along with the zoning process, a clear duty of care to all estate users. Formal inspections fall into 2 categories:

Routine Inspections:

Routine inspections are carried out by competent persons (not necessarily arboricultural specialists who have a working knowledge of trees and their defects such as the development of fungal fruiting bodies, dieback or death, structural failure (particularly following storms), lifting of root plates or increased leaning of trees, exudation of liquids/slimes from stems or branches or other. These inspections are usually conducted by gardeners, groundsmen and estate workers as examples and it is advised that the competent person/s should also receive suitable basic training e.g.: LANTRA Award for Basic Tree Inspections.

Detailed Inspections: Detailed inspections should only be carried out by those practitioners who are trained in tree hazard evaluation and hold one of the following examples:

- Level 5-6 QCF in Arboriculture (Qualifications and Credits Framework)
 - AA technicians Certificate in Arboriculture
 - Higher National Certificate in Arboriculture (NQF Level 4)
 - Higher National Diploma in Arboriculture (NQF Level 5)
 - RFS Professional Diploma in Arboriculture (NQF Level 6)
 - Honours Degree (BSc Hons) in Arboriculture
 - LANTRA Professional Tree Inspection (PTI) Course
- **All Oakbank arboricultural staff are fully qualified detailed inspectors with arboriculture qualifications or have passed the LANTRA Professional Tree Inspectors Course and the LANTRA Bats and Arboriculture Course.**

Step 4: Managing Risk

As part of the tree inspection process, any remedial action should be recorded on an appropriate inspection form. This remedial action should be prescribed by a competent person. Timescales for remedial works should be noted with a Health and Safety Risk Category. These are:

- **High:** Work to be carried out within 1 week
- **Medium:** Work to be carried out within 3 months
- **Low:** Work to be carried out within 12 months

Works requiring **immediate** or **urgent** action should be dealt with immediately on discovery and not given a High, Medium or Low Health and Safety Risk Category as above.

These risk categories are based on the assessment of both risk and hazard.

Once a tree has been identified by an inspection as having a defect requiring remediation, action should be planned, recorded and undertaken to correct or manage the risk.

Any Recommendations for work should be in line with BS: 3998:2010 "Tree Works – Recommendations".

Step 5: Record Keeping

All records including maps, form the basis for safety management reviews and in the case of an accident or incident, will be the essential evidence of an estate wide defendable tree management process. All notes, inspection reports, maps, registers, work specification and any other notes should be retained and used as background for future inspections or evidence of works.

Additional Information

Designations and Bats – Things to Consider Prior To Commencement of Remedial Tree Works

Prior to the commencement of all works, a check should be made to ensure that the trees in question are not covered by any designations e.g.; Tree Preservation Orders, found within a SSSI, found within a Conservation Area, works require a felling licence etc. If any of these designations are found, the necessary consent should be sought from the relevant authority and works should not commence until permission is in place, unless the works are an absolute emergency.

There are 17 species of bat which are known to breed in the UK. Bats use tree roosts for resting, breeding, nurturing young in maternity roosts and hibernating. All roost are protected by primary legislation, which places a duty on landowners and arboricultural contractors to take bats into consideration prior to and during tree pruning and removal operations. If bats are thought to be present then the necessary consent should be sought from the relevant authority prior to works commencing. Further information on this is available on request.