



TREE SAFETY MANAGEMENT

Practice Guide

2016



Contents

	Click Page No.
1.0 Introduction	3
2.0 What the law requires.	4
3.0 Transfer and delegation of duties & responsibilities	4
4.0 Preventative management	5
5.0 Tree safety management	6
6.0 Risk assessment	6
7.0 Competency & Training	6
8.0 Likelihood of injury	7
9.0 Target Usage Zones	8
10.0 Severe weather	9
11.0 Recording actions & monitoring	10
11.1 Identifying Hazards	10
11.2 Frequency and method of inspection	11
12.0 Determining remedial action & priorities.	12
13.0 Reporting Incidents	12
14.0 Links, References & Acknowledgements	13
15.0 Appendices	14
16.0 Glossary	15

Navigation

Click on the page number in the contents above to browse to that specific page on the document.

1.0 Introduction [\(Back to Contents\)](#)

This practice guide sets out DARD Forest Service procedures on minimising the likelihood of injury to the public & staff through forest planning and **risk based** inspection programmes of trees growing on DARD forestry land. It is being published to inform forest users about our approach to managing forests, and to guide other forest owners who may have similar responsibilities. We do not carry out inspections on property belonging to others.

The risk is extremely low of being struck and killed by a falling tree or branch or by driving into one. In the UK up to 3 people on average are killed each year by trees in public spaces, but as almost the entire population is exposed the risk is about **one in 10 million for those trees in, or adjacent to areas of high public use** HSE (2013). *Management of the risk from falling trees and branches. SIM 01/2007/05.*

Research to date supports the position that the risk from trees in most instances is no more than a routine and recognised risk in life, which most people accept without question. In other words, planning decisions about the management of trees in general should proceed on a rational, cost-effective basis as trees do not invoke additional concerns about perceived risk.

Good tree safety management does not seek to eliminate risk but to reduce it to a reasonable level. People enjoy trees in what they regard as “natural” or “unmanaged” places and will accept a degree of risk because of the value they bestow and the pleasure they derive from visiting or participating in leisure activities in tree environments. Because the risk is already low we can take account of other concerns when deciding how to manage trees, such as ecological, cultural and aesthetic values.



The National Tree Safety Group is a broad partnership of organisations that have come together to develop nationally recognised guidance on tree safety management that is proportionate to the actual risk from trees. The Group set out 5 key principles to be considered in sensible tree safety management ([National Tree Safety Group, 2011](#)) which are that:

1. Trees provide a benefit to society
2. Trees are living organism that naturally lose branches or fall
3. Risk to life is extremely low
4. Tree owners have a legal Duty Of Care
5. Tree owners should take a balanced & proportionate approach to tree safety management.

It is acceptable that tree management should not seek to eliminate all risks of minor injuries. Tree management should however not expose people to significant likelihood of death or permanent disability. Sometimes it may be unavoidable that tree management exposes people to very low risk of serious injury or death. We believe this is tolerable only in the following specific circumstances:

- The likelihood is extremely low
- The hazards are clear to users
- There are other obvious benefits
- Reducing the risks further would remove these benefits, and

- There are no reasonably practicable ways to manage the risk of injury.

Forest Service is an Agency of the Department of Agriculture and Rural Development. The Department is the employer of staff in the Agency, and those staff deal with the responsibilities of managing forests using their specific knowledge, skills and experience of forestry. The Service manages over 61,000 hectares of forest and many millions of trees. While most of these trees pose little risk to forest users and neighbours it is likely that without adequate controls some trees may suffer damage or suffer defects over time that make them more liable to fall or lose limbs which could cause harm to people and property.

Forest Service staff carry out inspections of potentially dangerous trees on boundaries near public roads and buildings or anywhere where the public are likely to be present in significant numbers. The Agency believes that it should introduce a risk based, systematic programme of inspections to target its resources at the areas of greatest risk. This guide describes what that approach is.

2.0 What the law requires. [\(Back to Contents\)](#)

The Forest Service has a duty to do all that is reasonably practicable to ensure that people are not exposed to risk. This duty is established under the Occupiers' Liability (Northern Ireland) Order 1987 and the Health and Safety at Work Order 1978. The Occupiers Liability Order provides that organisations such as the Forest Service have obligations to have a duty of care for visitors on forestry land¹. That duty of care includes taking reasonable steps to ensure our visitors safety. The Health and Safety at Work Order places a duty on employers to operate in such a way as to make sure, as far as is reasonably practicable, that even those who are not in our employment, are not exposed to risks to their health and safety. This includes contractors and visitors to our forests. The legislation creates an obligation for us to protect people from hazardous trees on forestry land so far as is reasonably practical. Additionally, the Management of Health and Safety at Work Regulations (Northern Ireland) 2000 provides

“That every employer shall make a suitable and sufficient assessment of:

- *The risks to health and safety of his employees to which they are exposed whilst they are at work; and*
- *The risks to the health and safety of persons not in his employment arising out of, or in connection with, the conduct by him of his undertaking.”*

We will fulfil our responsibilities relating to the management of hazardous trees by identifying trees that represent a significant risk to people or property and dealing with them accordingly.

¹ “Forestry land” means any land held by the Department for the purposes of any of its functions under the Forestry Act (Northern Ireland) 2010.

3.0 Transfer and delegation of duties and responsibilities [\(Back to Contents\)](#)

The Forest Service, as an Agency of DARD retains the responsibility for tree safety unless the duty & responsibilities have been passed to a third party. The conditions where this is likely to occur are:

- Where an area is leased, licensed or demised to a third party and the agreement clearly transfers responsibility for tree safety to that party for the duration of the agreement.
- An area temporarily under the control of a third party for works such as harvesting trees, and the agreements provide for the appointment of a Forestry Work Manager [FWM] answerable to the purchaser of the timber. Forest Service contracts provide that it will be the primary responsibility of the purchaser to ensure that the site is maintained in a safe condition for the duration of the harvesting and timber removal operation. Forest Service staff must remain vigilant during this time and inform the FWM of any operational damage to retained trees that they become aware of and which may present a hazard in the future.

The management of recreational facilities including tree inspections within a forest can be transferred through partnership arrangements to a third party. The responsibilities and duties associated with tree inspections not associated with these third party recreation areas remains with Forest Service. (e.g. roads and rights of way through the recreation area to neighbouring houses and land)

4.0 Preventative management [\(Back to Contents\)](#)

Preventative management relates to any desirable practice to reduce the likelihood of tree safety issues arising, for example, by ensuring new tree planting is carried out at a suitable distance from roads and buildings. Good forest design helps to ensure that residual trees are not damaged or left unduly exposed after harvesting operations.

Stewardship foresters are responsible for managing their forests and preparing plans that take account of the risks of hazardous trees. For example, there is a high risk associated with mature and dying trees within natural forest reserves and public access should not be promoted in these areas.

Foresters responsible for forest operations will consider the risks associated with the activities they manage and the presence of trees which may be hazardous because of their existing condition or as a potential result of the operation itself. They will take appropriate actions to minimise the risks and make safe any damage to trees that could pose a significant risk to people or property.

For example, harvesting foresters should ensure that hedgerow trees that have been significantly destabilised, weakened or damaged during harvesting operations are removed or made safe at the time of felling.



5.0 Tree safety management [TSM] [\(Back to Contents\)](#)

Tree safety management involves taking reasonable steps to identify trees that represent a significant risk to people or property and dealing with them accordingly. Forest Service will fulfil their duties by completing appropriate risk assessments and putting in place procedures to carry out inspections, report hazardous trees and ensure that actions have been taken to reduce the identified risks.

Planned tree safety inspections should be recorded separately from normal recreation inspections but they may be carried out at the same time.

Tree inspections will be recorded on a FS GIS (Geographical Information System) This system links recorded information to a particular location point on a digital map.

Stewardship foresters

Assess the risks that trees pose to the public in their forests.

This will be done in two stages by:

1. Establishing visitor/target usage zones for the whole Forest estate. [See Section 9 –[Usage Zones](#)]
 - Clearly record the rationale as to why a particular zone has been categorised and any details of the inspection regime applied [Recorded on the TSM Usage Zones GIS theme in the “Attribute table”]

2. Carry out visual tree assessments in each zone as per the inspection regime applied.
 - Follow up on any issues that have been discovered in the inspections.
 - Keep a record of all actions relating to any particular issues including information from general recreational inspections, reports from the public and observations from Forest Service staff. [Details recorded to GIS]

Line managers of Stewardship Foresters will ensure that risk assessments and controls are being adhered to through monitoring procedures. The line managers will agree the rationale for categorising each usage zone

6.0 Risk assessment [\(Back to Contents\)](#)

Forest Service risk assessment is based on the competent assessment of the level of risk, (hazard severity and likelihood of occurrence without adequate controls) and the subsequent identification of adequate controls.

In determining adequate controls Forest Service relate to industry best practice and in this case the following:

- [Visitor Safety in the Countryside Group. 2007. Tree Safety Management.](#)
- [National Tree Safety Group. 2011. Common sense risk management of trees](#)
- [Forestry Commission. 2000. Hazards from trees – a practical guide](#)

7.0 Competent assessment of trees & training for staff [\(Back to Contents\)](#)

Forest Service trains many of its staff in risk assessment and these people are competent to complete risk assessments for forest operations and for inherent forest risks such as ground conditions and dangerous trees. In addition to competency achieved through academic qualifications, Forest Service offer staff additional training to ensure that they are competent to carry out visual tree inspections.

There are two levels of competence designated for staff carrying out visual tree inspections.



Level 1:-Basic Tree Safety Inspection

Staff which carry out visual tree safety inspections such as stewardship foresters or senior supervisors should have a reasonable knowledge of trees and must complete the Basic Tree Safety Inspection course. This training provides tree safety inspectors who may have a non-arboricultural background to recognise a specific list of hazards, to determine remedial action relating to this list of hazards, to understand the limit of their knowledge, and to ask for further advice from their manager or arboricultural experts whenever they are unsure.

Level 2:-Advanced Tree Safety Inspection

Staff which manage large numbers of trees or important tree collections, or who manage & provide advice to others carrying out tree inspections. These members of staff should have a professional knowledge of trees and have completed the Advanced Tree Safety Inspection training course.

8.0 Prioritising inspections: Likelihood of injury [\(Back to Contents\)](#)

Matheny & Clark (1994) explain that the risk of harm is affected by three factors: The **size** of the tree part that could fail, the **likelihood** of that part failing and the **targets** that could be harmed. While all trees may pose a risk it is recognised that this risk increases as the trees grow to and past maturity, as the numbers of people exposed to risk increase and where the duration of exposure increases.

Inspections should therefore be carried out more frequently where people are likely to congregate, e.g. camp sites, busy car parks, adjacent to busy roads, in well used picnic areas and in core recreation areas. At the opposite end of the scale are the general forest areas which are seldom used by visitors and are only infrequently visited by forest staff. This would constitute the vast bulk of our estate. These pose little risk and generally will not require any formal inspection. Forest Service will zone the forest estate and neighbouring land affected by our trees into four Usage Zones types dependant on the perceived risks.

However such classifications should be informed by local experiences & occurrences. Some areas may have to be re-zoned from time to time or when special events are scheduled. Zones should be reviewed in general within each planning cycle or where a significant change takes place such as new recreation products being developed or new construction development adjacent to a forest.

9.0 Target Usage Zones [\(Back to Contents\)](#)

Resources need to be directed to areas where there is greatest risk to people and property. This is best done by designating each part of our property and that of neighbours affected by our trees, into a usage zone. Forest Service has decided to zone its forests into four categories **Zone 1- Very High**, **Zone 2 – High**, **Zone 3 - Medium**, and **Zone 4 – Low** based on level of use and this will prescribe the inspection type and frequency. A record must be kept as to the rationale for allocating a usage zone to a particular area. Up to date knowledge is key to getting this as accurate as possible. These details will be retained on the Forest Service Geographical System (FSGIS) as a GIS layer and will be reviewed as part of the forest planning cycle. A fifth zone, **EXC** will be highlighted for areas that are managed by a third party under a contractual agreement and who have agreed to take on the role of duty holder as regards tree safety management. The table below can be used as a guide to help staff determine which zone is applicable.

Examples			
Usage Zone	Level of use	Examples	Inspection frequency
1 Very High	Constant very high volume road or visitor use. Exposed road traffic > 30 k vehicles per day Very high likelihood of visitors Staff or visitors stay in the area for long periods. [Most of the day]	<ul style="list-style-type: none"> • Areas close to motorways, busy trunk roads, busy road junctions in near <u>constant</u> use. • Areas close to private dwellings, heavily used buildings e.g. schools /shops/ cafes / offices /Ranger huts • High use camping & caravan sites. • Areas used for large-scale events 	At least annually [Formal visual inspection] of every tree within falling distance of target area. Binoculars, tapping mallet & probe available]
2 High	Frequent high volume of road traffic [15k – 30k vehicles per day] or visitor use. High likelihood of staff / visitors gathering or staying in the area [Part of the day]	<ul style="list-style-type: none"> • Areas used for car parks, visitor entrances, cafes with outside seating, well used picnic areas. • 'A' roads & busy junctions • Busy car parks • Private Gardens • Areas close to staff working areas, e.g. yards, workshops 	At least Bi annually [Formal visual inspection] of every tree within falling distance of target area. Binoculars, tapping mallet & probe available]

3 Medium.	<p>Areas within falling distance of light to moderately used public roads and adjacent to designated forest paths and trails.</p> <p>Infrequently used buildings should be included here.</p> <p>Moderate volume road traffic [$<15k$ vehicles per day]</p> <p>Moderate levels of visitor use</p> <p>Visitors tend to disperse rather than gather</p>	<ul style="list-style-type: none"> • Areas close to local roads with moderate traffic levels • Formal way-marked trails & avenues • Main routes in parks and woods with moderate visitor numbers • Fishing stands & busy waterways 	<p>At least every five years. Inspections may be <u>more frequent</u> depending on the local risk assessment including possible consequences of tree failure.</p> <p>[Walk by inspection of every tree within falling distance of target area looking for obvious defects.]</p>
4 Low	<p>These areas would include the parts of the estate away from known formal public access routes.</p> <p>Low levels of visitor use Any visitors very well dispersed</p>	<ul style="list-style-type: none"> • Infrequently used car parks. • Forest roads, footpaths, bridleways. • Areas restricted for public access, or impeded by natural or planted vegetation 	<p>No inspections required</p> <p>Informal observations only.</p> <p>Any issues observed by any staff or public reported to local Stewardship Forester</p>
5 EXC	<p>These excluded areas are managed by third parties under a legal agreement which clearly stipulates that the responsibility for tree safety management has been transferred for that particular use Usage can vary but will generally fall into levels 1 to 3</p> <p>FS will ensure that it is satisfied with the management regime of the trees involved and will monitor this on a regular basis.</p>	<ul style="list-style-type: none"> • Forests leased for play areas • Formal footpaths /cycle routes taken over by local councils 	<p>Forest Service will monitor that the agreed management system under licence is being adhered to.</p>
<p>Sometimes a right of way or building which is not included in a licence agreement between FS and a council is affected by trees within the excluded zone. Forest Service will still zone & carry out appropriate level inspections of trees in the excluded zone for which we retain a responsibility because the trees affect another zone such as a right of way or building.</p>			

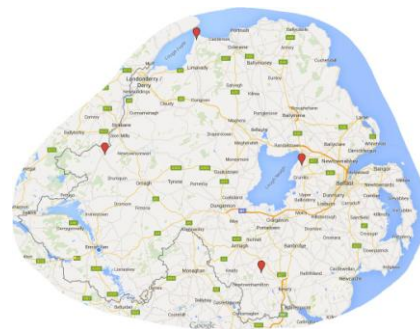
10.0 Severe weather events [\(Back to Contents\)](#)

The met office website will give wind speeds recorded for the previous 24 hours. Local wind strengths above 40 knots (46mph) formally described as “Severe Gale” by the Met office and the Beaufort wind force scale correspond with the point at which it can be expected that some branches will be detached and trees will begin to blow over. This is dependent on other factors also such as time of year and ground saturation. The following links take you to the Met office forecasts and alerts which will provide this information.

[Met Office 5 day forecast](#)

[Met Office . Weather warning Alerts](#)

The met office website however only gives information for the previous 24 hours at one of the nearest four weather stations, Castleterg, Aldergrove, Glennane and Magilligan. The wind speeds recorded at these areas may not be representative of a local forest area so whilst they can be used as an indicator, staff should also consider more obvious localised signs such as fresh broken branch wood and debris on roads and paths.



In Northern Ireland we may get 6 or 7 severe gales a year particularly through the winter.

After severe gales or other severe weather such as heavy snow, stewardship foresters should be vigilant and react to any reports of fallen or damaged trees in their areas and record any remedial action that they may take.

11.0 Recording actions and monitoring [\(Back to Contents\)](#)

The stewardship forester will be responsible for carrying out inspections, and ensuring subsequent actions are enacted and closed. In addition the stewardship forester will collate other tree safety notifications from other parties and include these in the recording system.

Line managers of stewardship foresters are responsible for monitoring inspections and actions.

11.1 Identifying hazards

This is undertaken by a competent member of staff ([see section 7.0](#)). It is their responsibility to ensure that the hazard is assessed to the best of his/her ability and recorded accurately.

Many trees are potentially hazardous but stewardship foresters can only reasonably identify the defects most likely to lead to injury or damage to people or property. These are physical defects which might lead to the break up or collapse of the tree or its branches, and are identified and recorded during a programme of inspection.

The practice is to identify and record visible defects. This is referred to as Visual Tree Assessment or VTA - a system used to identify and evaluate structural defects and stability in trees. It includes visual assessment, usually from the ground, and some evaluation of visible symptoms, using hand tools if necessary. Techniques such as electronic sensors and decay detecting drills are available to arboricultural consultants to assess the structural integrity of standing trees, but should be commissioned only where it is necessary to assess the extent of decay in particularly important trees or to supplement the VTA for particular trees in Usage Zones 1 and 2.

Knowledge of the propensity of some species to break up or decay more rapidly than others (e.g. Horse Chestnut or Beech) is necessary, but inspectors who routinely work with trees should be competent to undertake the initial inspection after receiving basic VTA training.

In addition to this formal process, general observations by staff during routine activities will contribute to the tree inspection process.

11.2 Usage Zone inspection: Frequency and method.

This table sets out in more detail the frequency and method of inspection for each designated Usage Zone as explained in [section 9.0](#). Hi viz clothing should be worn when inspecting near roads

Usage Zone	Frequency of inspection	VTA method
1 Very high	At least annually*	Thorough inspection of every tree for defects within falling distance of target. – with binoculars, tapping mallet and probe available for use.
2 High	At least every two years*	Thorough inspection of every tree for defects within falling distance of target. - Binoculars, tapping mallet and probe required to be available for use.
3 Medium	Up to 5 years* E.g A zone on a quiet country road bordered by medium sized trees may be 5 years. If the country road is winding, bordered by very old veteran trees, then frequency may be increased to 3 years or less.	Careful visual check for obvious defects of every tree within falling distance of target.. If defects are spotted then a thorough examination is carried out.
4 Low	Casual site visits. No formal regime	No formal inspection - observation and awareness of the general condition of trees.
5 Excluded	No inspection required by FS	Licensee provides evidence of inspections to FS.

* Depending on age, species and condition of trees, it may be appropriate to change the frequency or timing of inspection. The purpose of this discretion is to enable best use of available resources. The rationale behind the decision should be recorded.

The best time to inspect trees is in during the autumn as this is when fungal fruiting bodies can most easily be seen and identified, and deciduous trees still have sufficient foliage to enable their general health to be assessed. However, looking at trees in full leaf during the summer can also be helpful in assessing their general health, while inspecting deciduous trees in winter when leaves have fallen allows any physical defects in the upper tree parts to be observed more easily.

12.0 Determining remedial action and priorities [\(Back to Contents\)](#)

Decide on the range of reasonable actions necessary to reduce risk. This should take account of other objectives relating to nature conservation, conservation of the historic landscape, the value of trees in learning and education, and their aesthetic qualities. The cultural, landscape and habitat value of trees should always be considered when deciding on remedial action.

Old trees are often uniquely valuable as habitat for wildlife, and even if the physical condition of the tree is poor, remedial action should only be necessary where there is a clearly perceptible risk to life or property. This might mean managing public access in the vicinity, for example by re-routing a path, or if necessary removing part of the tree, or if required, ultimately felling it.

The appropriate remedial action must be decided by a competent person. Remedial action can also include instigating more detailed investigation. In some circumstances, it will be necessary to bring in external consultants to use specialist techniques or provide advice in a particularly complex situation.

If remedial action is required then the priority for this will depend on the risk assessment. The following categories are recommended:

Category A: Trees in very high, high and sometimes in medium usage zones, which are seriously hazardous and which pose a high risk should be dealt with immediately on the best advice available. Public access should be restricted until the work has been completed. Signage may be necessary.

Category B: Once identified, remedial action must be implemented within 6 months. Consider restricting public access until the work has been completed.

Category C: Identified as not being a short-term safety concern, but proactive management may prevent problems developing, will benefit the tree and improve long-term safety. The tree may simply be put under observation for further possible action at the next inspection. The key benefit here is that it has been entered into the system and monitored.

Referral: The inspector at the time of assessment can refer the tree to his line manager for further consideration for a second opinion or other specified reasons. Referrals should be dealt with promptly and the tree categorised A, B or C for specific action.

13.0 Reporting Incidents involving falling trees & branches [\(Back to Contents\)](#)

Incidents where trees have fallen or shed limbs and where injury to visitors has occurred should be reported through the existing visitor accident report form VA1. Incidents involving staff should be reported in the usual way via the HRConnect system. This system is designed to meet our legal requirements for reporting accidents at work under [RIDDOR\(NI\)97](#)

Incidents where trees have fallen or shed limbs but no injury results, should be reported as a near miss where the incident occurs in Usage Zones 1 and 2, in circumstances where serious injury could have occurred. Information should be provided on the species and age of the tree, the part that failed, and weather conditions.

14.0 Links & References [\(Back to Contents\)](#)

The following publications & bodies have been referenced in the writing of this practice guide.

- [National Tree Safety Group. 2011. Common sense risk management of trees](#)
- [Forestry Commission. 2000. Hazards from trees – a practical guide](#)
- [Visitor Safety in the Countryside Group. 2007. Tree Safety Management.](#)
- [Health and Safety Executive. 2013. Management of the risk from falling trees and branches. SIM 01/2007/05](#)
- Matheny & Clarke. Evaluation of Hazard Trees in urban areas. 1994.
- Internal LINK to TSM reports on FS Intranet v1 <http://a14553/FSGIS/TSM/>

14.1 Acknowledgements [\(Back to Contents\)](#)

Forest Service would like to express it's appreciation to the following for their contribution and assistance in helping us develop our tree safety management system.

- National Trust NI
- David Dowson [Tree Life AC Ltd]

15.0 Appendices [\(Back to Contents\)](#)

Appendix 1: Defining usage on public roads as regards zoning for tree safety management [TSM]

Assessment of road usage and appropriate inspection regime. [Using DRD traffic census data 2011]

Very High >30000 vehicles per day [average] Formal individual tree inspection every year

High → 15000-30000 Formal individual tree inspection every two years

Medium 1< 15000– Walk by inspection up to 5 years.

Example Roads: Data received from reference Department of Regional Development - Road service, 2011. Traffic and Travel Information 2011 - Annual traffic census. Examples Using table 1 to identify road and check point and table 5A to obtain checkpoint data	Numbers of vehicles for two channels [directions]unless stated	E.g Usage Zone
M1 Above Stockman's lane	61390	Very High
Westlink east	41050 - 1	Very High
Westlink west	39090 - 1	Very High
A4 Enniskillen through pass	17040	High
A46 Lower Lough Erne shore road	4980	Medium
A2 Newry to Warrenpoint	13610	Medium[One channel affected only 6860]
A27 Newry to Armagh	16700	High [Or medium if /2
B23 Hillhall road, Lisburn	11100	Medium
A 505 Drum Road Cookstown	5350	Medium
A505 Omagh – Cookstown [Knocknamoe]	9500	Medium
B 46 Gortin to Greencastle	1070	Medium
B180 Bryansford road [No checkpoint]	-	Medium

Data is split for two way traffic [2 Channels] One channel may only be affected by trees as in dual carriageways so the lower figure can be used. FS will regard all maintained public roads to be no lower than the medium category so that every tree close to a road will get at least one walk by inspection every five years.



16.0 Glossary [\(Back to Contents\)](#)

Stewardship Forester: A forester that takes care of a group of forests.

GIS (Geographical Information System): a system designed to capture, store, manipulate, analyze, manage, and present all types of spatial or geographical data.

RIDDOR(NI)97: Reporting of Injuries, Disease and Dangerous Occurrences Regulations (Northern Ireland) 97