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Veteran Trees – Specialist Survey Method

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Veteran Trees Initiative

Specialist Survey Method

Designed by



On behalf of





Veteran Trees Initiative

Specialist Survey Form

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Veteran Trees Initiative

Specialist Survey Form

Introduction

Introduction

English Nature launched the Veteran Trees Initiative in March 1996 to promote the management and continuity of England's veteran tree heritage. A key element of the Veteran Trees Initiative is to develop a comprehensive and consistent method of survey as an agreed standard for the recording of veteran trees. Survey information gathered through the *Veteran Tree Recording System* is to be entered onto a national database of veteran trees which will form a register of recorded sites. It is intended that the database will contribute to a greater understanding of the distribution, biology and ecology of veteran trees. The database should subsequently enable recorders to trace individual trees and assess changes associated with particular veteran specimens.

Properties of Veteran Trees

Woody plants have the unique ability to remain healthy and structurally sound by laying down new increments of wood and bark over older wood which may have been weakened through injury, disease or decay. The growth rate of the new wood is influenced by mechanical stress, so that relatively wide increments are laid down over areas where decay of the old wood has led to reduced strength. This adaptive growth sometimes enables trees to attain great mass and longevity, even though they may shed individual limbs.

Tree wounds remove the protective covering of bark, exposing the underlying wood to the atmosphere and to colonisation by decay fungi and other micro-organisms. Partial drying of the wood allows some of these organisms, together with others which are present internally before wounding, to make use of the wood as a food source, thereby degrading it in a variety of ways. As a tree ages, the structure of its bark and wood becomes increasingly complex due to a combination of continued wounding, new growth and the progression of decay through many stages, culminating in cavity formation.

The ability of a tree to continue laying down new annual increments over a partially degraded and complex core is important for biodiversity as well as for its own attainment of great size and age. The resulting structural

complexity provides a wide range of internal and external environments which may host many specialised fungi, plants and animals. It is the appreciation of these diverse characteristics which is the focus of the recording process, so that the veteran tree is perceived as a living habitat, rather than as an isolated antique organism.

The Recognition of Veteran Trees

Veteran status is associated with late maturity. However, trees of different species approach late maturity at different ages. Although there is no precise definition of veteran status for the purposes of field work, knowledge of species longevity, size typically associated with old age and local conditions affecting tree growth contributes to the recognition of veteran trees in the field. Their special quality in the landscape is reflected in the view that these trees "are of interest biologically, aesthetically, or culturally because of their age" (see 'Guide to the care of ancient trees', Veteran Trees Initiative, English Nature 1996).

Apart from obvious veteran candidates of massive scale and known antiquity, the surveyor is often likely to encounter uncertainty in the field as to the veteran status of certain trees. In such instances, reference should be made to the range of veteran attributes indicating habitat and associated flora and fauna addressed on the recording form, rather than tree size alone. If in doubt record the tree.

Tree Safety

It should be noted that whilst veteran trees may pose a safety risk, this survey is essentially a habitat assessment. *This is not a safety assessment.* Where there is suspected safety concern further specialist advice should be sought.

The Veteran Tree Recording System

English Nature hopes that the *Veteran Tree Recording System* will appeal to a wide range of people and will involve many who will not be expert. In order to take account of the different levels of specialist knowledge held by those who want to take part, three levels of survey have been devised.



Veteran Trees Initiative

Specialist Survey Form

Introduction

Level 1 is a simple, introductory level to veteran tree recording, using the *Veteran Trees Introduction to surveying ancient trees* Recording Card. Each card is used to survey a single tree. These Recording Cards are intended for use by schools and the non-specialist enthusiast. The Recording Cards are not contained within the Specialist Survey Booklet but may be obtained separately from English Nature.

Level 2 is an intermediate *Generic Survey* of veteran trees, using this Specialist Survey Booklet and completing *only* the essential data sections which are *unshaded* on the Specialist Survey Forms. These are found at the back of the booklet.

Level 3 is a comprehensive, *Specialist Survey* of veteran trees, using this Specialist Survey Booklet and completing *all* the sections of the specialist Survey Forms which are found at the back of the booklet.

Survey Instructions for Levels 2 and 3

Use of the recording system

The *Veteran Tree Recording System* employs a survey method using the forms, which are contained in this booklet together with guidance notes.

Each Survey Form is individually numbered and double sided (Side 1 & 2).

Side 1 contains Site Details and Tree Details [Sections 1-21].

Side 2 contains Tree Details and Notes [Sections 22 - 31].

Site details are entered in sections A to M at the top of side 1.

Site Details (A-M) are to be completed for each new site or distinct location upon a site. Guidance notes and instruction for completion of this section are found on pages 5 and 6 of this booklet.

Tree Details

Tree Details Side 1:

Tree Data Sections 1 - 5

Tree Form/Vigour Sections 6 - 10

Tree Habitat Sections 11 - 21

Tree Details Side 2:

Tree Associates Sections 22 - 25

Tree Management Sections 26 - 30

Notes Section 31

Guidance notes and instructions for the completion of these sections are found on pages 7 - 17 of this booklet.

Veteran trees are extremely variable in form and condition. It is important that the method of survey, explained through the Guidance Notes, should be followed as far as possible to ensure reasonable consistency.

Plotting and Tagging of Trees

Plotting and tagging of trees may be necessary on larger sites. Where trees are identified with an individual tag-number affixed to the tree, a method should be adopted which causes minimal damage to the tree and allows for tree growth (see 'Pollard and Veteran Tree Management II' Corporation of London 1996). In addition to tagging, *wherever feasible all tree positions should be plotted on a plan* and a copy of the plan kept with the recording forms.

Filing and Documenting

Upon completion of a survey the recorder or responsible organisation should keep the original documentation and file a separate copy for safe keeping.

English Nature should be kept informed of progress and completion of recording and should be informed where documents are to be held. English Nature will be responsible for the overall co-ordination of survey results and their collation within a national database of veteran trees.

Survey Precautions

Surveyors should ensure that:

- Any necessary permissions are obtained from land owners or other relevant bodies prior to surveying.
- Surveyors should take all reasonable precautions to avoid risk of personal injury and if possible should not work alone.
- The survey is to be undertaken from ground level only.
- No damage to the tree or its surroundings should occur in the course of surveying.
- Conventions approved by English Nature associated with collection of sample material should be strictly observed.

English Nature do not accept liability for any injury or loss sustained in the course of surveying.



Veteran Trees Initiative

Specialist Survey Form

Site Details

A SITE

This is the name or address of the estate, farm or wood etc eg 'Ashton Court Estate'.
A site may contain one or several identifiable *locations* (see E) where veteran trees may be found.

B COUNTY

Identify the *postal county* in which the site is located.
Where a site spans more than one county, the county is taken to be the area where the majority of veteran tree locations may be found.

C POST CODE

Enter the post code of the site address if appropriate.
eg 'Ashton Court Estate'.
The entry for this item will be B | S | 4 | 1 | 9 | J | N.

D GRID REFERENCE

This is the conventional six-figure grid reference derived from reading a current Ordnance Survey map at 1:50,000 scale.

Where feasible, the reference should be prefixed with the relevant two letter identifying code which indicates the 100 km square in which the site is found. The grid reference should identify the approximate *central point* of the site.

eg 'Ashton Court Estate'
Enter grid reference of approximate centre of site - (eg ST 555 722)

E LOCATION

Identify the designated area within the SITE wherein the veteran trees may be found.

E LOCATION cont.

This may be a vernacular title of local historic relevance, eg 'Hanging Wood', 'Clarkencombe' or 'Waterley'. This may also be a sub-compartment within a woodland.

Where no location title is known a simple description of tree location can be entered under Section 'J' (Site Notes).

WHEREVER A LOCATION CHANGES,
A NEW SURVEY FORM SHOULD BE USED.

F OWNERSHIP

This is the name of current owners of the land upon which the trees are standing.

eg Sir John Smith, Bristol City Council, National Trust, MOD.

G SITE RECORDS

Do you know of any surveys and/or records which may have a bearing on the veteran trees on the site?

If so which of the following categories of survey and/or records are applicable?

Ecological

- [1] Habitat
- [2] Botanical
- [3] Mycological
- [4] Invertebrate
- [5] Lichen
- [6] Fauna
- [7] Arboricultural
- [8] Other ecological

G SITE RECORDS cont.

Environmental

- [9] Soil
- [10] Geological
- [11] Hydrological
- [12] Atmospheric
- [13] Other environmental

Historical Records

- [14] Land use
- [15] Estate records
- [16] Other historical records
- [X] Other relevant records
- [0] None known

For ecological and environmental surveys only:

If date of survey is known suffix the survey category as follows:-

- | | |
|-----|--|
| [A] | Survey/record undertaken within past 5 years |
| [B] | " " 5-10yr |
| [C] | " " 10-20yr |
| [D] | " " 20-50yr |
| [E] | " " over 50 |

eg Mycological survey undertaken 1923 and 1996, estate records during start nineteenth century, enter [3AE, 15].

H SITE STATUS

This is a planning or other legal designation indicating the constraints which may apply to the site and therefore affecting the trees which are present.

Enter the appropriate two letter code.

One or more designations may apply.

[AO] Area of Outstanding Natural Beauty

[CA] Local Authority Conservation Area continued

H SITE STATUS *cont.*

- [ES]** Environmentally Sensitive Area
[HC] Heritage Coast
[NN] National Nature Reserve
[NP] National Park
[OA] Other Ancient Monument or historic site
[SA] Scheduled Ancient Monument
[SL] Special Landscape Area
[SS] Site of Special Scientific Interest
[TP] Tree Preservation Order
[WH] World Heritage Site
[X] Other/unknown
[O] None

M ORGANISATION

Where relevant enter the names of the organisation on whose behalf the survey is being undertaken.

N MAP

Does a map exist of the site?

- [Y]** Yes
[N] No
[X] Don't know

If so, are the trees inspected plotted on the map?

- [Y]** Yes
[N] No
[X] Don't know

I ACCESS AND VISIBILITY

Is the site accessible to the public?

- [Y]** Yes
[N] No
[X] Don't know

Is/are the tree/s visible from a public route or place?

- [0]** Not visible
[1] Visible but not prominent
[2] Prominent

J SITE NOTES

Briefly describe site location (eg In open field 200m W of Ashton Court House) and any special features of landscape interest about the site.

K DATE

This is the date of inspection entered as D | M | Y.

L RECORDER

Name of person who is inspecting the trees.

1 TREE NUMBER

This is a numerical designation identifying individual trees by means of a number tag fixed to the trunk (see 'Pollard & Veteran Tree Management II' Corporation of London 1996). This is optional.

Number identification should be undertaken to guarantee that no duplication occurs for any site, by plotting numbers on the plan.

2 GRID REFERENCE

Insert grid reference for individual tree. Minimum six figure grid reference as (D) omitting 100km letter code.

3 SPECIES

Identify the type of tree (see TABLE below). If species unknown, collect sample of shoot or foliage and label with tree number for identification and insert code [XB] or [XC] as appropriate.

SPECIES TABLE (Native and pre 1800 introductions)

BROADLEAVES

[CAR]	Common alder	(Alnus glutinosa)
[CAP]	Crab apple	(Malus sylvestris)
[AH]	Ash	(Fraxinus excelsior)
[BE]	Beech	(Fagus sylvatica)
[BEC]	Beech cultivar	(Fagus sylvatica cv.)
[PBI]	Downy birch	(Betula pubescens)
[SBI]	Silver birch	(Betula pendula)
[BCH]	Bird cherry	(Prunus padus)
[WCH]	Wild cherry, gean	(Prunus avium)
[HCH]	Horse chestnut	(Aesculus hippocastanum)
[SC]	Sweet chestnut	(Castanea sativa)
[EM]	Elm species	(Ulmus sp.)
[EEM]	English elm	(Ulmus procera)
[WEM]	Wych elm	(Ulmus glabra)
[HAZ]	Hazel	(Corylus avellana)

[HAW]	Hawthorn	(Crataegus monogyna)
[HOL]	Holly	(Ilex aquifolium)
[HBM]	Hornbeam	(Carpinus betulus)
[LI]	Lime species	(Tilia sp.)
[CLI]	Common lime	(Tilia x europaea)
[LLI]	Large leafed lime	(Tilia platyphyllos)
[SLI]	Small leafed lime	(Tilia cordata)
[MA]	Maple species	(Acer sp.)
[FM]	Field maple	(Acer campestre)
[SY]	Sycamore	(Acer pseudoplatanus)
[OK]	Oak species	(Quercus sp.)
[EOK]	Evergreen oak	(Quercus ilex)
[POK]	Pedunculate oak	(Quercus robur)
[TOK]	Turkey oak	(Quercus cerris)
[SOK]	Sessile oak	(Quercus petraea)
[PO]	Poplar species	(Populus sp.)
[ASP]	Aspen	(Populus tremula)
[BPO]	Black poplar	(Populus nigra)
[GPO]	Grey poplar	(Populus x canescens)
[WPO]	White poplar	(Populus alba)
[LPL]	London plane	(Platanus x hispanica)
[ROW]	Rowan	(Sorbus aucuparia)
[WHI]	Whitebeam	(Sorbus aria)
[WST]	Wild service tree	(Sorbus torminalis)
[WAL]	Walnut	(Juglans regia)
[WL]	Willow species	(Salix sp.)
[CWL]	Crack willow	(Salix fragilis)
[WWL]	White willow	(Salix alba)
[XB]	Other broadleaves	(-)

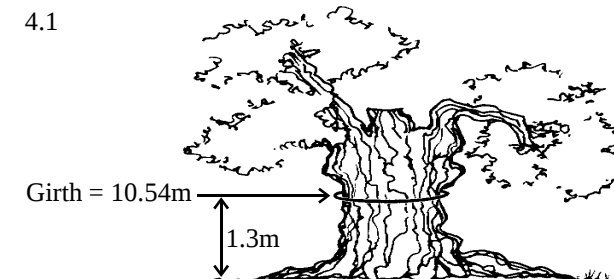
CONIFERS

[CE]	Cedar of Lebanon	(Cedrus libani)
[JU]	Native juniper	(Juniperus communis)
[EL]	European larch	(Larix decidua)
[SP]	Scots pine	(Pinus sylvestris)
[NS]	Norway spruce	(Picea abies)
[YEW]	Common yew	(Taxus baccata)
[XC]	Other conifers	(-)

4 DIMENSIONS

4.1 GIRTH

The girth (circumference) of the tree is measured at 1.3m height above ground level, and is entered as an accurate measurement in metres to two decimal places, eg 10.54m. Where this is possible enter girth in column 4.1 and enter [1.3] in column 4.2.

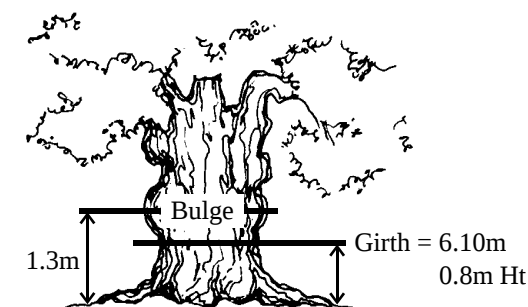


4.2 MEASUREMENT HEIGHT - IRREGULARITIES

If there are swellings, burrs, branches or other irregular features which occur at 1.3m height, then measure at the nearest point *below*, where the trunk is more regular.

Where the height of the girth measurement is *not taken at 1.3m*, this should be noted by recording the measurement in column 4.2, eg if girth is 6.10 metres at a height above ground level of 0.8m, the entry would be: Column 4.1 = [6.10] Column 4.2 = [0.8]

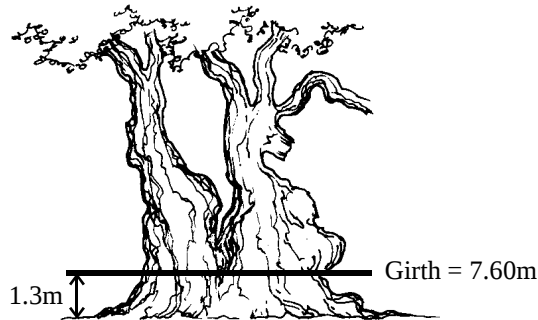
4.2 Example



4.2.1 MULTI-STEMMED above 1.3m

If the specimen is multi-stemmed, and the multi-stem formation occurs *above* 1.3m height, observe conventions as for 4.1 or 4.2.

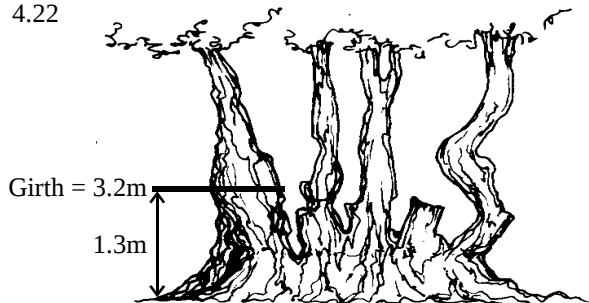
4.2.1



4.2.2 MULTI-STEMMED below 1.3m

Measure the largest stem at 1.3 metres, where a specimen is multi-stemmed from below 1.3m height.

4.2.2



4.2.3 STUMPS

If a stump is below 1.3m height, record girth at the nearest opportunity below 1.3m height and the height of this measurement as for irregular swellings (4.2).

4.2.3 Example [6.35] at 0.8m ht.



4.2.4 If for any reason accurate girthing is still impossible, bracket measurement [(6.35)].

4.3 BOLE HEIGHT

Refers to *pollard trees only*, see 6 'Tree Form'. The bole is the trunk length from ground level to region where *main pollard limbs originate*.

5 NUMBER OF TRUNKS

Trees may contain more than one trunk. (See Tree Forms 6.3, 6.4, 6.6 and 6.11). Count the number of stems *over 0.3m diameter* and arising from *below 1.3m height*.

6 TREE FORM

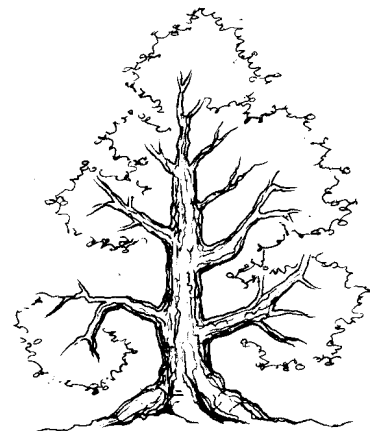
There are many forms a veteran tree may have, depending on its growing conditions, past damage and management. The following describe a range of possible tree forms. *What does the tree look like?*

Select from those below. Enter appropriate bracketed number [-] eg for a maiden tree (see 6.1) enter [1].

Note: More than one description may be applicable to a single tree.

TREES

6.[1] Maiden Tree



[1] Free grown with unmodified natural crown.

6.[2] Shredded Tree



[2] Maiden tree with side branches cut close to main stem throughout crown.

6.[3] Multi-stemmed



[3] Trunk *naturally* divided into two or more principal stems giving the appearance of an integral crown.

6.[4] Coppice



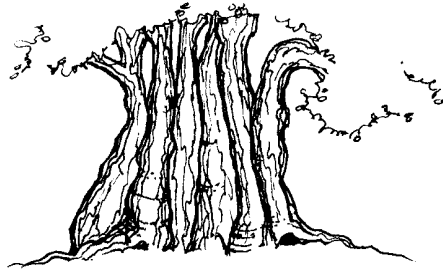
[4] Multi-stemmed from near ground level arising from past cutting of a maiden tree.

6.[5] Stored Stem



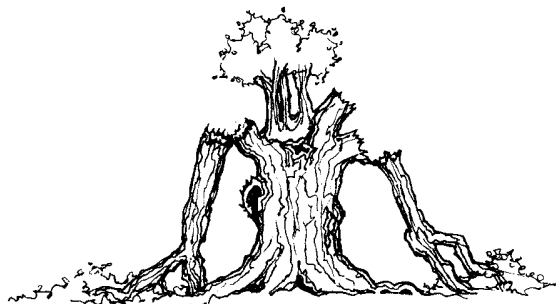
[5] Re-grown coppice subsequently recut, singling out a single stem to develop in maiden form.

6.[6] Bundle Planting



[6] Multiple seed/seedling planting of single species developing in maturity with multi-stemmed trunk or crown form, partially or totally fused about areas of stem contact.

6.[7] Natural Pollard



[7] Maiden type tree with major crown regrowth arising from natural catastrophic damage.

6.[8] Managed Pollard / Re-pollard



[8] A maiden or previously pollarded tree subjected to truncation of crown framework or of main stem. Crown regrowth selectively cyclically managed for produce.

6.[9] Lapsed Pollard



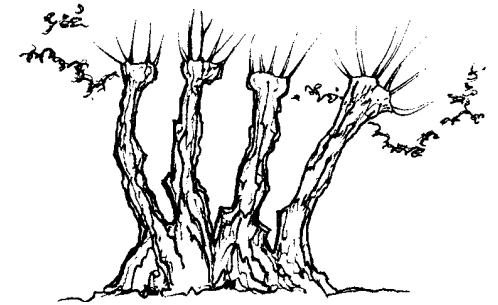
[9] Formerly managed pollard subsequently neglected, typically multi-stemmed heavy limbed, originating at similar crown level.

6.[10] Tiered Lapsed Pollard



[10] Lapsed pollard variably developing multi-level, multiple, limb structure as a result of major limb removal or natural loss at various levels about the crown.

6.[11] Coppard



[11] Single tree previously managed as coppice, subsequently cut to form multi-stemmed pollards.

6.[12] Phoenix Regeneration

Either



Or



[12] Tree-form regrowth, possibly of layered origin arising from collapse of parent trunk or crown.

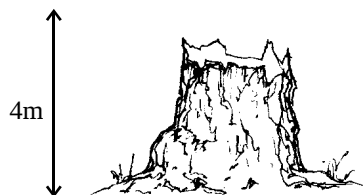
6 STUMPS

6.[13]



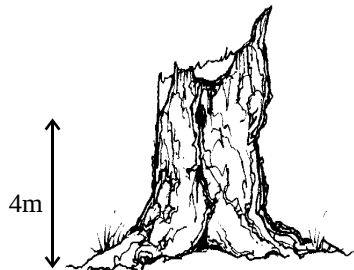
[13] Felled Stump (< 1m height)

6.[14]



[14] Shattered/fractured Stump (< 4m height)

6.[15]



[15] Shattered/fractured Stump (> 4m height)

[X] OTHER (refers to trees or stumps)

7 STANDING / FALLEN

How upright is the tree? What is the position of the main trunk?

7.[1]



[1] More or less upright?

7.[2]



[2] Leaning at a strong angle though apparently firmly rooted.

7.[3]



[3] Leaning with a loosened rootplate.

7.[4]



[4] Collapsed, supported by an adjacent tree.

7.[5]



[5] Collapsed. Main trunk propped clear of ground.

7.[6]



[6] Collapsed, main trunk lying on ground (rootplate intact - partially attached to ground).

7.[7]

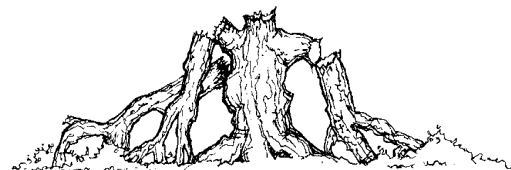


[7] Collapsed, main trunk lying on ground (root plate intact - entirely detached from ground).

7.[8] Either



Or



[8] Fractured, collapsed trunk or main crown still attached to parent tree.

7.[9]



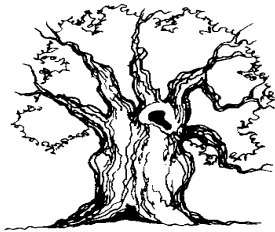
[9] Fractured, collapsed and separated, rootplate attached to ground.

[X] OTHER

8 LIVE GROWTH

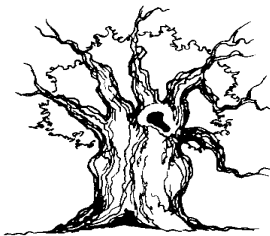
This assesses the current proportion of live growth about the tree (this does *not* take account of the shape of the tree, *nor* past crown collapse).

8.[1] Live, Mostly Full Canopy



[1] The crown is mostly covered with live growth. (Live growth occupies over 50% of current canopy outline.)

8.[2] Live Partial Canopy



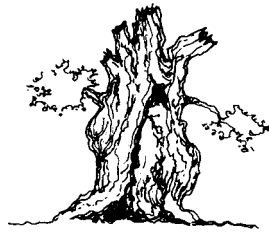
[2] The crown is fairly well covered with live growth. (Live growth occupies 25%-50% of actual crown outline.)

8.[3] Live Residual Canopy



[3] The crown has some/little live growth. (Less than 25% live crown occupies actual crown outline.)

8.[4] Crown is dead.



[4] The trunk has some live growth.

8.[5] Entire Tree Dead

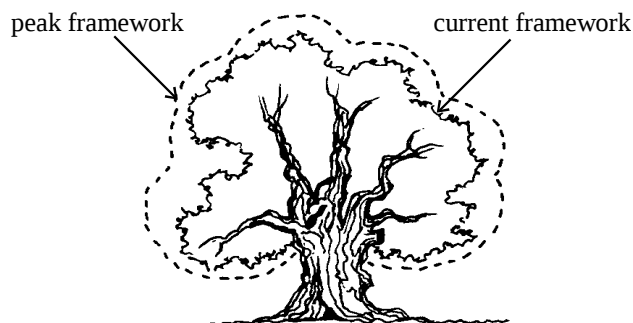


[5] No live growth.

9 CROWN LOSS

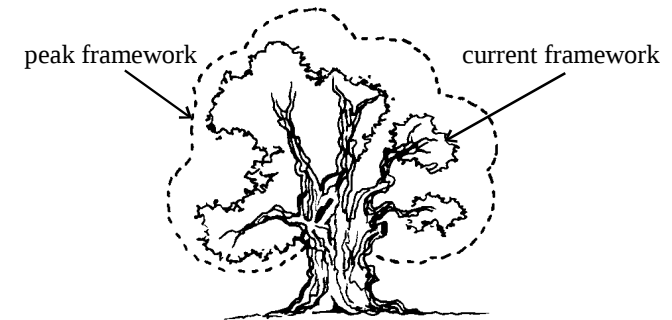
How much of the original crown of the tree has been shed? Crown loss is a comparison between its *current* veteran scale and shape and its likely *former peak crown outline*.

9.[1] Full Crown Outline



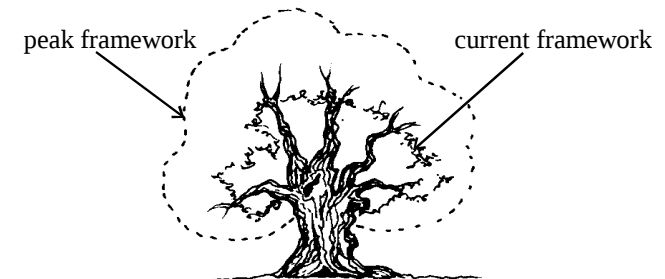
[1] The tree has shed less than 25% of its likely peak crown framework.

9.[2] Nearly Full Crown Outline



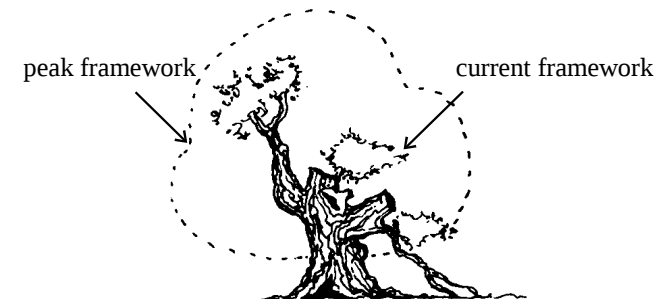
[2] The tree has shed 25%-50% of likely peak crown framework.

9.[3] Partial Crown Outline



[3] The tree has shed 50%-75% of likely peak crown framework.

9.[4] Remnant Crown Outline



[4] The tree has shed over 75% of likely peak crown framework.

10 EPICORMIC GROWTH

This is twiggy growth apparently developing from the bark surface as a response to stress or environmental changes. In veteran trees strong epicormic presence may indicate vitality about different regions of the tree.

Is there strong, vigorous epicormic growth (twiggy shoots) present about the tree?

If present where is this found? Enter the appropriate number code.

- [1] Base (B)

[2] Trunk (T)

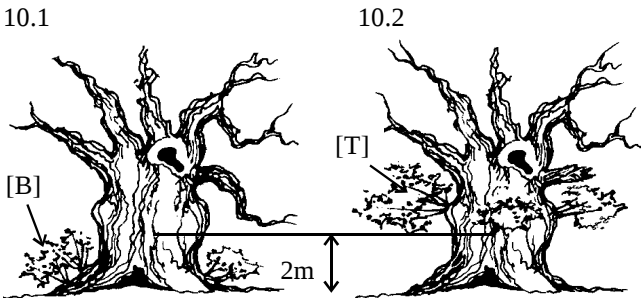
[3] Crown (C)

[4] BT
- [5] BC

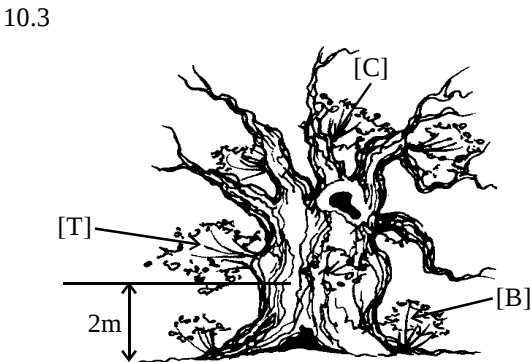
[6] TC

[7] BTC

[0] None present



10.1 [1] Base 10.2 [2] Trunk



10.3 [7] Base, Trunk and Crown

11 BARK CONDITION

Are there large areas greater than 30cm x 30cm (12" x 12") of dead, loosely attached, missing or flaking bark about the tree?

If present where is this found?

- B Base (up to 2m height)
- T Trunk (above 2m height to base of crown)
- C Crown

Enter the appropriate number code

- [1] B

[2] T

[3] C

[4] BT
- [5] BC

[6] TC

[7] BTC

[0] None present

12 BARK FLUXES (SAP RUNS)

Emissions from within the tree leaking to the bark surface. Exudates include fluxing of liquid often under gas pressure within the tree resulting from bacterial and fungal activity. It may also include the bleeding of wounds and localised reactions to surface colonisation.

These may be seen as wet surface discolourations of varying consistencies or areas of dry and encrusted deposits. Exudations may smell unpleasant or may have a pleasantly fermented smell.

Fluxes may emerge from wounds, cracks or fissures without obvious signs of decay.

This substrate provides a specialised habitat for insects and fungi.

Assess the type of bark flux from the following table. Assess the number of fluxes. Prefix the type with the number.

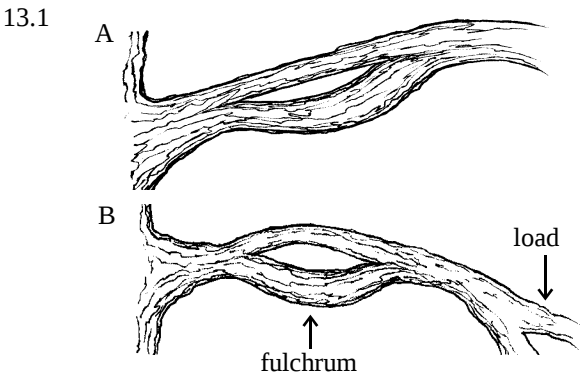
- eg [2B] = 2 wet fluxes
- [3A] = 3 dry fluxes
- [0] = No fluxes apparent

12.1 Bark Flux Table

Type of bark flux					
Dry	Wet	Sticky	Bubbly	Other	None
[A]	[B]	[C]	[D]	[X]	[O]

13 SPLIT LIMBS

The process of gradual limb loss starts typically in a small proportion of upward curving limbs when the end weight transmits stress along the longitudinal axis causing fibres to part, buckle and tear (delamination).



13.1 The limb may not be shed and the condition may remain stable for many years (termed Hazard Beam).



13.2 The limb may be supported within the crown or along the ground or it may further subside, rupturing tissue about the upper surface leaving a torn live limb suspended by the lower fibres.

13 SPLIT LIMBS cont.

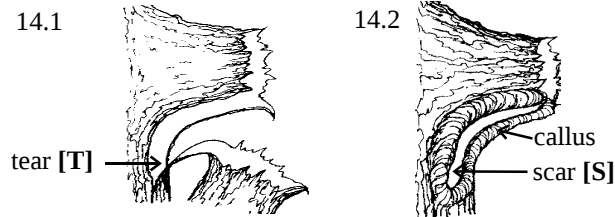
Count the total number of split limbs (13.1 & 13.2) of greater than 15cm (6") diameter at point of fracture. Enter this total on the recording card. If none present enter [0].

Note:

At stage (13.2) the split limb has also resulted in a parent stub (see 15 below). When the suspended limb eventually separates it will result in both a live stub and a tear wound (see 14, Tears/Scars).

14 TEARS / SCARS / LIGHTNING STRIKES

14.1 TEARS [T]: exposed woody tissue wounds usually elongated in shape, principally torn along (not across) the grain.



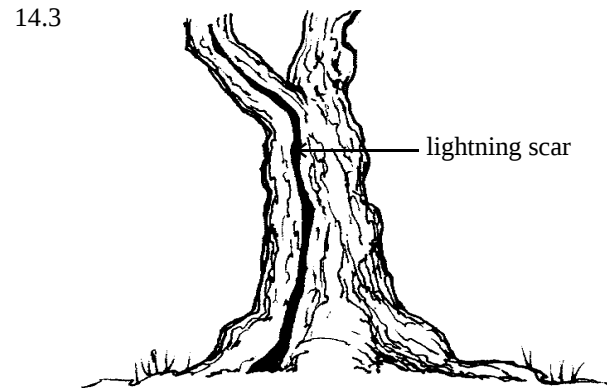
Tears are associated with the *recent* shedding of live limb parts and result when attached fibres on the underside resist fracture from the parent stem.

14.2 SCAR [S]: an *aged* tear with exposed tissue surrounded with roll of callus.

Record the number of tear and scar wounds in excess of 30cm (12") ie 2 hand lengths.
eg 3 Tears and 2 Scars = [3T, 2S]

Enter tallies in column. If none present enter [0].

14.3 LIGHTNING SCAR: an aggravated and extensive wound from a direct lightning strike to tree. This results in a longitudinal surface trunk wound with internal tissue fragmentation.

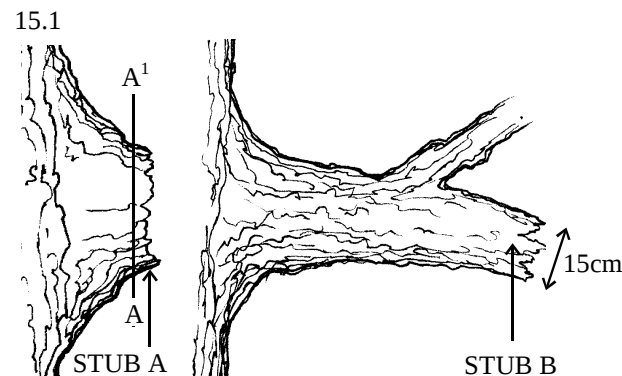


Lightning scars should be recorded by suffixing the entry tally for scars with [*].

15 LIVE STUBS

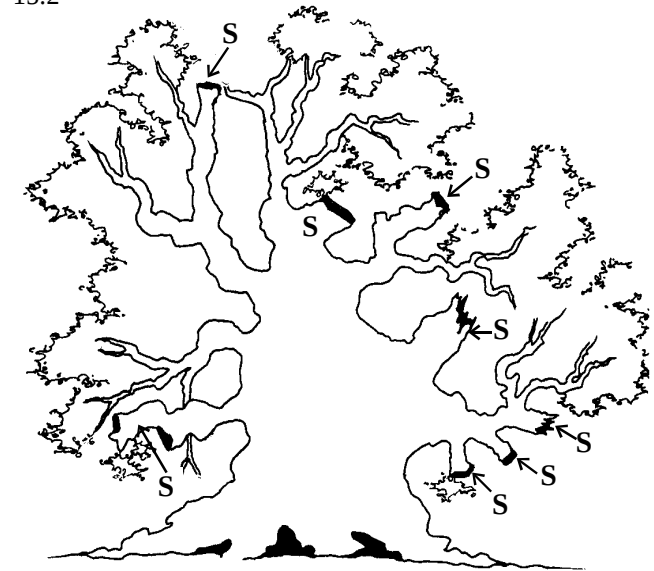
Stubs are naturally fractured and truncated *ends* of live stems or branches. A stub is a result of a natural fracture and may follow the process described under splitting (see 13). It is measured near the point of fracture.

Stubs greater than 15cm (6") diameter are counted and entered on the recording card.



Stubs are measured from beyond the branch collar (A¹-A) and are over 15cm (6" diameter). A and B are measured from close to point of fracture.

15.2



(S) = Stub Total number of stubs = [8]

Note:

A *stub*, may also be subtended by a *tear* or *scar* wound (see 14). If so *stub*, *tear* and *scar* wounds should be recorded separately.

16 HOLLOWING: TRUNK & MATURE CROWN

Hollowing occurs through a combination of wounding and progressive decay which may develop into enlarged cavities. Hollowing may become continuous, leading to an entirely hollow stem or partial shell, providing a wide range of habitat. Hollowing may be readily visible or may be concealed within an apparently intact trunk or limb.

Assess hollowing according to its character and location about the trunk and crown.

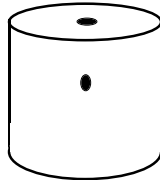
This assessment addresses *only clearly visible* hollows and **DOES NOT REQUIRE THE USE OF BORING IMPLEMENTS**.

16 HOLLOWING *cont.*

Inspect the Base, Mid Section and Top Section of the main trunk. Identify which of the following schematic diagrams best defines the state of each trunk section [1]-[5].

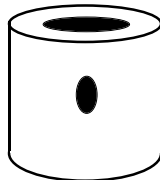
[1] Apparently solid trunk

With minor cavities (less than 15cm / 6" diameter).



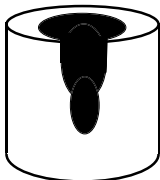
[2] Hollow trunk

Entire circumference. Minor holes may be present on one or more sides.



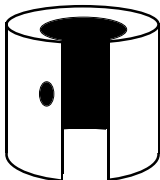
[3] Partially solid trunk

Partial circumference with major cavities, large openings (>15cm) or merging apertures.



[4] Remnant trunk

With incomplete shell up to 30% of outer circumference missing.



[5] Remnant trunk

with more than 30% of outer circumference missing.



THE TRUNK

Locate the hollows about the trunk (16.1-16.3) and record its character as [1]-[5]. Combinations may apply.

16 HOLLOWING *cont.*

16.1 Base of trunk

Lowest third of trunk from ground level.

16.2 Middle section of trunk

Occupies mid third of length of bole.

16.3 Top section of trunk

Occupies upper third of length of bole where it loses its discernible continuity with the crown framework.

THE CROWN

16.4 Mature crown hollowing

Identify the *number* of hollows greater than 15cm (6") diameter about the mature branches.

17 HOLES: TRUNK & MATURE CROWN

These are small apertures which may be round or irregular in shape and form entry points to hollows which themselves may be hidden.

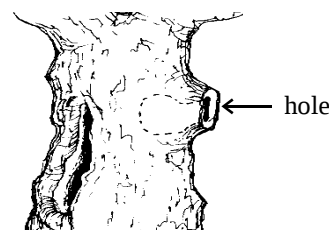
Holes may originate through small limb loss or bark wounds. Aperture expansion is facilitated principally by the activity of micro-organisms and invertebrates.

Apertures between 5cm (2", thumb length) to 15cm (6" hand length) are *counted*.

Count the number of holes about the trunk and crown *separately* and enter the tally in appropriate column.

Holes may be occupied by bats or birds. Signs of use are indicated by imported mud or twigs, droppings and urine stains below the aperture (see 25 Birds/Mammals).

17.1



18 WATER POCKETS

Water pockets accumulate about the tree where there are hollows or natural depressions with an orientation which allows the collection of organic debris and the retention of water to form localised reservoirs at various heights.

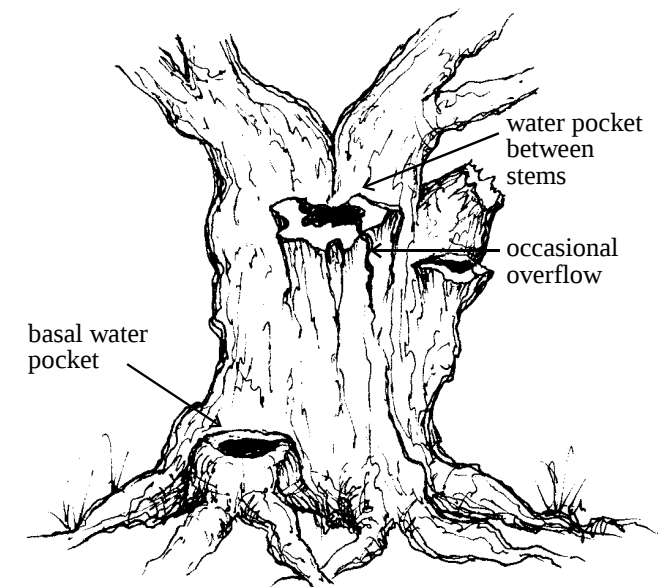
Typically water pockets are found at the union of major stems, at buttress depressions of major stems and may have intact bark.

Internal decay may provide conduits between water pockets within the heart of the tree affording gradual prolonged flow after rainfall. This provides specialised habitats for fungi and insects.

A water pocket containing settled rain water is distinct from a hollow with wet disintegrating rot (see 19 Rot).

Count the number of water pockets and insert the tally in the recording card. If none present enter [0].

18.1



19 ROT

Following wounding and fungal activity wood may be digested to form rot. The broad characteristics of wood degradation may be described by reference to its colour, texture and moisture content. These are presented in Table 19.1 'Rot Characteristics'.

19.1 Rot Characteristics Table

Colour	Cubical Dry	Fibrous Dry	Fibrous Moist	Soft / Moist	Wet / Disintegrating	Other	None
White	[A]	[B]	[C]	[D]	[E]		
Red / Brown	[F]	[G]	[H]	[K]	[M]	[X]	[O]
Black	[N]	[P]	[R]	[S]	[T]		

Assess the presence of *predominant major* rots about the trunk or main limbs. Rot areas up to 2 hand spans 30cm (12") x 15cm (6").

Qualify the predominant characteristics of each identifiable, major rot by reference to Table 19.1.

Identify the number of major rots by prefixing the type designations with the appropriate numbers.

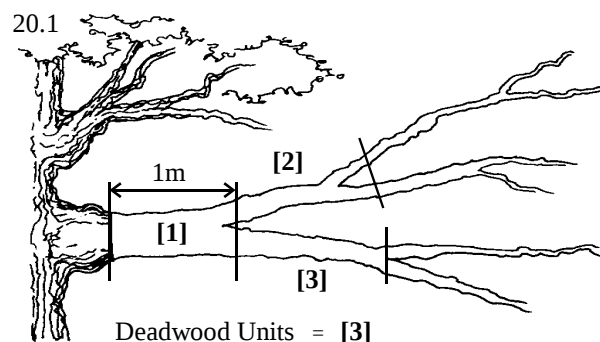
eg 2 sites of red/brown, dry cubical rot = [2F]
3 sites of white, dry fibrous rot = [3B]

Where a site of rot is considered to be extensive ie greater than 2 hand spans, suffix Rot Characteristic entry with [*].

20 DEADWOOD (ATTACHED TO TREE)

Are there any *dead* branches or trunk sections attached to the tree greater than the thickness of your leg (15cm / 6" or over)?

Each identified 1m (39") length (over 6" diameter) is measured as a *single unit of deadwood*. The number of *deadwood units* attached to the tree is measured and the tally entered in the recording card.



Note: • Diameter is taken *beyond* collar swelling.
• Treat moribund branch as dead limb.

21 DEADWOOD (FALLEN)

Are there any detached fallen *deadwood units* ie major branches or parts of trunk at least 1m (39") long and over 15cm (6") diameter, *lying near the tree* within its natural height scope?

Each length of 1m = 1 unit of fallen deadwood.
Assess the number of fallen deadwood units and enter the tally in the recording card.

22 FUNGI

Assess the type/s of fungi present upon the tree *and* beneath the drip line of the crown on the ground.

Identify the number of *different* fungal types and their location from Table 22.1.

22.1 Fungal Type / Location Table

Fungi	Tree	Fallen Wood	Ground Under Crown	Other	None
Bracket	[A]	[B]	[C]		
Skin-like Covering	[D]	[E]	[F]	[X]	[O]
Cap and Stalk	[G]	[H]	[K]		
Slime	[M]	[N]	[P]		

22 FUNGI *cont.*

eg 2 types of bracket on tree + 1 type of bracket on fallen deadwood + 3 types of cap/stalk fungi on ground = [2A | 1B | 3K].

23 EPIPHYTES AND HEMIPARASITES

Note the presence of epiphytes and hemiparasites upon the tree identified by the following codes.

TYPE

[A] Lichens

[B] Moss

[C] Polypody / Fern

[D] Ivy

[E] Mistletoe

[X] Other - trees / shrubs / climber

[0] None present

If more than one type is present enter appropriate multiple code.

Where more than one species is identified within a category, prefix category with species count.

eg 3 Lichen species + 2 Moss + Ivy = [3A | 2B | D]

Where epiphytic growth is exceptional, covering more than 30% of the main trunk, suffix the appropriate category entry/ies with [*] eg [3A*].

24 INVERTEBRATES

Evidence of invertebrate activity is indicated by the presence of bore/exit holes and frass (dry, powdery residue from tunnelling) about the wood, bark and sites of decay - such species are adapted to the deadwood habitat (ie saproxylic). Many are only found on veteran trees.

Record indications of invertebrate activity by identifying the presence of burrows/exit holes and frass associated with the following substrates:-

24 INVERTEBRATES *cont.*

- [1] Rot Site: Enter appropriate category from Table 19.1 Rot Characteristic Table.
- [2] Deadwood
- [3] Bark
- [4] Fungi
- [X] Other
- [0] None

Enter the appropriate code/s on the recording card.

25 BIRDS AND MAMMALS

Veteran trees present particularly valuable sites for bat roosts and bird nests.

Indications of habitation may include modification to apertures of holes or fissures, feeding debris, distinctive droppings and bark urine streaks (dark staining).

Feeding activity may also be observed from the chiselling of bark and wood about the tree.

Observe the following:

Identify signs of occupancy associated in holes about the tree.

Record additional signs associated with feeding.

Refer to the list below, record appropriate code/s.

- [1] Opening adapted with mud or twigs
- [2] Opening with smoothed lower lip
- [3] Bark streaks with *blackish* staining leading down from aperture or fissure.

Additional signs

- [4] Chiselling of wood and bark.
- [5] Droppings, pellets or other distinctive debris.
- [6] Other nests or occupancy sites about the crown.
- [X] Other significant signs of bird and mammalian activity.
- [0] None observed.

26 CONTEXT

This describes the landscape context *within 2x height of the tree* and is indicative of the setting and historic land use about the tree:

- [AR] Arable Field
- [AT] Ancient Track
- [AV] Avenue
- [BU] Old Buildings
- [BX] Recent Development (within 20 years)
- [CH] Churchyard
- [CL] Common Land
- [DP] Deer Park
- [FP] Footpath / bridleway
- [GD] Garden, small (domestic)
- [GO] Grounds, large (ornamental)
- [HE] Heathland
- [HR] Hedgerow
- [HW] Highway
- [MO] Moorland
- [OR] Orchard
- [PB] Parish Boundary
- [PL] Parkland
- [PO] Pondside
- [PS] Pasture unimproved (low intensity grazing)
- [PX] High intensity grazing
- [RV] Riverside
- [UP] Urban Park
- [UT] Urban Tree
- [VG] Village Green
- [WL] Woodland (internal)
- [WE] Woodland Edge
- [X] Other

The recorder will need to consult the context table for this and *enter a code*.

One or more designations may apply.

27 MANAGEMENT

This indicates a recent history of *tree management* over the *past ten years*.

- [1] Pollarding
- [2] Other arboricultural work
- [3] Weed control (within crown spread)
- [4] Management of competitive tree growth
- [5] Protective fencing (effective)
- [6] Protective fencing (ineffective)
- [7] Controlled public access
- [8] Planting: for veteran continuity
- [9] Planting: potentially competitive
- [X] Other
- [0] None known

One or more designations may apply.

28 DAMAGE

Record major damage and/or debilitation which has occurred to the tree or its associated flora and fauna. Only *known* causal agencies should be recorded.

Select from the following:

- [1] Excessive browsing from stock/pests
- [2] Inappropriate tree surgery
- [3] Vandalism
- [4] Plant/machinery (impact/abrasion)
- [5] Lightning
- [6] Fire damage
- [7] Storm
- [8] Compaction
- [9] Ploughing/ditching/trenching
- [10] Chemical toxicity: herbicide or fertiliser application or identifiable pollution.
- [11] Virulent disease: arising from identified pathogen (eg DED, Honey Fungus).
- [X] Other MAJOR damage
- [0] None
- [*] *Imminent fatal or structural debilitation threat*

29 SHADE

Is the tree shaded by other trees? Assess the extent of the shade and record from the list below.

- [0] Unshaded
Unshaded, at present.
- [1] Light Shade
Shaded on one or two sides but not from above.
- [2] Close Shade
Shaded on three or four sides, *not* from above.
- [3] Heavy Shade
Shaded from above and one or two sides.
- [4] Extensive Shade
Shaded from above and all aspects.

30 PHOTOGRAPHIC NUMBER

Where possible relate photographic identification number to tree number.

eg	If tree no.	=	00176
	Photo. no.	=	00176A
Where	A	=	1990
	C	=	1992
	E	=	1994
	G	=	1996
	I	=	1998
	K	=	2000
	Z	=	2015
	B	=	1991
	D	=	1993
	F	=	1995
	H	=	1997
	J	=	1999
	etc		
	AA	=	2016

If this system is adopted enter appropriate letter code.
If there is no systematic photographic record of the tree/s and none proposed enter:

- [0] None
- [X] If another record system is being used.

31 NOTES

Where the recorder requires to make additional comments or to register a need for further assessment, limited scope is presented in the Notes Section on the recording card.

FURTHER INFORMATION

For advice, copies of Veteran Tree Survey Forms and Guidance Notes:



ENGLISH
NATURE

The Veteran Trees Initiative (VTI/
SVY2/3)

English Nature
Northminster House
PETERBOROUGH

PE1 1UA

Enquiry line: 01733 455100

Fax line: 01733 455103

For technical comments regarding survey methods and data collection communicate in writing to:



Treework *Environmental Consultancy*
Treework Services Ltd
Cheston Combe

Church Town
Backwell
BRISTOL
BS48 3JQ

Fax number: 01275 463087

ACKNOWLEDGEMENTS

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Developed and designed by Neville Fay and Nigel de Berker of Treework, under contract to English Nature.

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*David Clayden, Mike Edgington, Mike Ellison, Amanda Giles, Ted Green, Roger Key, David Lonsdale, Helen Read, Lawrence Sisitka
and other members of the Ancient Tree Forum and English Nature's Veteran Tree Initiative.*



FOR OFFICE USE		
Form Number		
Key	Essential	Non-Essential
K	Date	
L	Recorder	
M	Organisation	
N	Map	

A	Site		E	Location		I	Access Visibility					K	Date		
B	County		F	Ownership		J	Site Notes					L	Recorder		
C	Post Code			G	Site Records							M	Organisation		
D	Grid Reference			H	Site Status							N	Map		

Tree Number	Grid Reference	Species	Dimensions						Tree Form	Standing/Fallen	Live Growth	Crown Loss	Epiconic Grith	Bark Condition	Bark Fluxes	Split Limbs	Tears / Scars	Stubbs	Base	Hollowing				Water Pockets	Rot	Deadwood Attached	Deadwood Fallen
			Girth	Mment Ht	Bole Ht	No. of Trunks														Holes	Crown						
1	2	3	4.1	4.2	4.3	5	6	7	8	9	10	11	12	13	14	15	16	17				18	19	20	21		
Tree Data							Tree Form / Vigour					Tree Habitat															

[illegible][illegible]

Please keep a copy and return a copy to English Nature marked (VTI/SVY2/3)



Treework Services Ltd • Cheston Combe • Church Town • Backwell • BRISTOL BS48 3JQ
Fax 01275 463078