



Wokingham District Veteran Tree Survey Handbook



Measuring one of Wokingham's veteran trees - English Oak (*Quercus robur*) with a girth of 5.85m.
SU 76022 69032 - Arborfield

A veteran tree can be defined as 'a tree that is of interest biologically, culturally or aesthetically because of its age, size or condition.' Veteran trees are remarkable. They are very important for the range of wildlife they support, providing unique conditions for a variety of fungi, lichens, mosses and ferns; insects, birds and other animals. They have aesthetic appeal and often illustrate past land use or cultural landscapes, forming historical links with the past.

Veteran trees can be threatened by road construction, by building developments and by intensive agriculture. To help preserve Wokingham's veterans we need to know where they are. The results of this survey will be shared with other organisations to support the conservation and management of these ancient trees and enable future generations to continue to enjoy these magnificent features of our landscape. The data will also contribute to the national inventory of ancient trees, the Ancient Tree Hunt, being compiled by the Woodland Trust.

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N.B. Health and Safety is dealt with in a separate document.

Tree identification is not covered here. See Yahoo site for references and web guides.

1. INTRODUCTION

The survey aims to map the veteran and other significant trees in and around Wokingham - in the 3 towns and 14 parishes of Wokingham Borough, and in some areas outside the Borough. The survey is organised on a parish basis. Each Parish and Town has a co-ordinator who organises the recording of trees within that Parish. Recorders submit their records to their co-ordinator, who checks them and forwards them to the data manager for inclusion into the WDVTS database. The entries are processed, plotted onto large-scale maps and returned to the recorder, via the co-ordinator, for checking.

The WDVTS database is a *csv* (comma separated value) file, which can be read directly by Excel. It is accessible to any WDVTA member via our Yahoo Group website.

<http://groups.yahoo.com/group/WDVTA/>

No personal details are kept in the database. Recorders are identified by a recorder code. The latest versions of the database and all files relating to the survey, as well as other useful files about veteran trees, are on this Yahoo website. If you haven't already joined the group, do so by clicking "Join This Group". (NB: It is a closed group and therefore will not be found by searching.)

A map of the trees in our database, with descriptions and photos, is on our website, hosted by the Thames Valley Environmental Records Centre (TVERC):

www.wdvta.org.uk

This site is accessible to everyone. The web pages are designed to make use of different screen sizes, but are not displayed properly in versions of Internet Explorer earlier than version 6.

Our data is passed on to regional and national environmental databases. In particular, it is sent to Wokingham Borough Council Environmental Services (Trees and Landscape Section); to TVERC and to the Woodland Trust.

A paper recording sheet is provided for use in the field, but data should be returned to the co-ordinator **using the Excel spreadsheet supplied**. (If you do not have access to a computer, discuss this with your co-ordinator.) Please complete the forms as fully as possible before returning them, rather than submitting lots of individual records. Recorders and co-ordinators can of course design their own paper recording forms, but data for inclusion in the WDVTS database **MUST** be returned on *WDVTS-Recording Sheet.xls*. The paper form is designed to fit onto one side of A4, and therefore has fewer columns than the Excel recording sheet. Details required for several of the Excel columns can be written under Comments on the paper form.

For further information or clarification, including detailed instructions about joining the Yahoo Group, contact the data manager: datamanager@wdvta.org.uk

1:a Files

You should have the following files (obtainable from your co-ordinator or the Yahoo site):

WDVTS-Recording Sheet.xls	Excel file for submitting new tree records.
WDVTS-Correction Sheet.xls	Excel file for correcting existing records.
WDVTS-Update Sheet.xls	Excel file for updating the status of a tree and/or adding photos for existing records.
WDVTS-Handbook.pdf	This document.
WDVTS-Recording form.pdf	Paper recording form.

NB: None of these files contain macros (and therefore you can "disable macros" if asked).

1:b Data Backup

Co-ordinators should keep their original records (spreadsheets, paper sheets and photos) as a backup to the master database (which is of course also backed-up). Please consult the data manager before disposing of any original records.

1:c Parish Codes

All towns and parishes have a two-character code:

Parish / Town	Parish Code
Arborfield and Newland	AN
Barkham	BA
Charvil	CH
Earley (Town)	ET
Finchampstead	FI
Hurst	HU
Remenham	RE
Ruscombe	RU
Shinfield	SH
Sonning	SO
Swallowfield	SW
Twyford	TW
Wargrave	WA
Winnersh	WI
Woodley	WO
Wokingham Town	WT
Wokingham Without	WW
Bracknell - Crowthorne	XC
Bracknell - Winkfield	XW
Other outside WBC	XX

1:d Recorder Code

All tree records must be associated with a recorder code so that any queries relating to that record can be addressed to the original recorder. The recorder code comprises the two-letter Parish Code followed by a recorder ID. Recorder IDs are allocated by the co-ordinators, and they devise their own system. Some use numbers, some letters or a combination of both. Up to 4 characters may be used (excluding spaces, punctuation marks and special characters). [Note that a recorder ID of '1' is different from '01'.]



2. MEASURING TREES

2:a Which Trees to Measure

Currently there is no precise definition of a veteran tree. Generally they will be large, but age and consequent size are dependent on species. Oaks can live for several centuries, but birches rarely reach 100 years old. Hence, a veteran birch will have a smaller girth than a veteran oak. [See Woodland Trust "Ancient Tree Guide 4: What are ancient, veteran and other trees of special interest?" - copies available from co-ordinators and on the Yahoo site.] We want to record all trees with a girth of 3 metres or more, but if you think a tree looks old, then record it regardless of size, and make an appropriate observation in the comment column. Include **dead trees**, **stumps** and **fallen trees** if they have a girth over 3 metres.

We are interested in **significant** trees and not just old ones; so record any trees considered significant (visually, historically, etc). We are contemplating designating particularly significant trees - if you think a tree deserves a designation enter it in the comment column.

Record all trees with a girth of 3.0 metres or more and any tree that you consider significant, stating why you think it is significant.

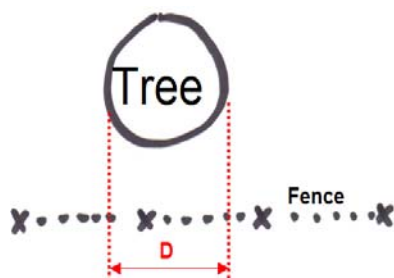
2:b How to Measure the Girth

The girth is the measurement all the way around the trunk of the tree. It should be measured at a height of **1.5m above the ground** or 1.5m above the **highest** point of the surrounding ground (if the ground is uneven). If there is a large irregularity in the tree at this height, measure at the **narrowest** point below 1.5m. If the trunk is forked at a height of 1.5m, then measure at the **narrowest point below the fork** [See diagrams below illustrating how to measure odd shaped trees.]

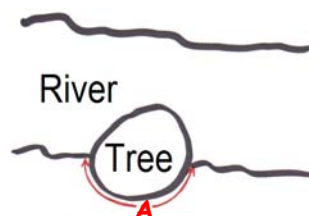
Record both the girth measurement and the height at which that measurement was taken in **metres**, eg: 3.57 - not 357 (cm) or 3570 (mm).

2:c Estimating the Girth

If it's not possible to measure the tree, then estimate its girth. The tree can be hugged (outstretched arms). Assume one hug=1.5m (or measure your hug). Other estimation methods include measuring/hugging half the tree and doubling the result, or estimating the diameter and multiplying by 3.



Estimated girth = $D \times 3$



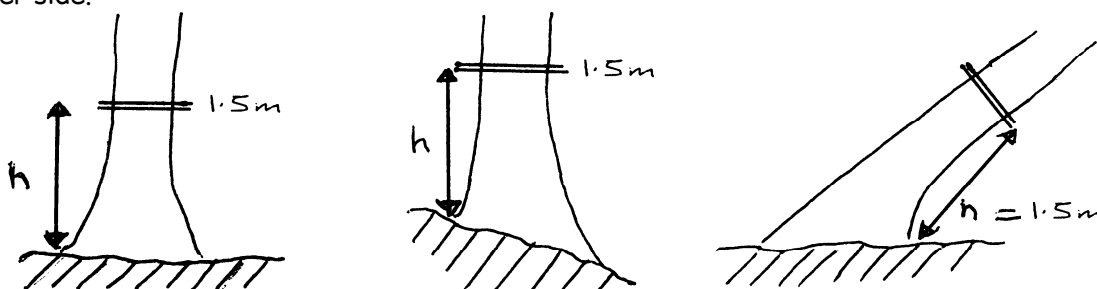
Estimated girth = $A \times 2$

If measuring over ivy, remember that a 2inch (5cm) layer of ivy all around the tree will cause a girth increase of about 0.3m and *pro rata*.

In all these cases put an **E** after the estimated value when recording in the field and **E** or **e** in the estimate column on the Excel sheet.

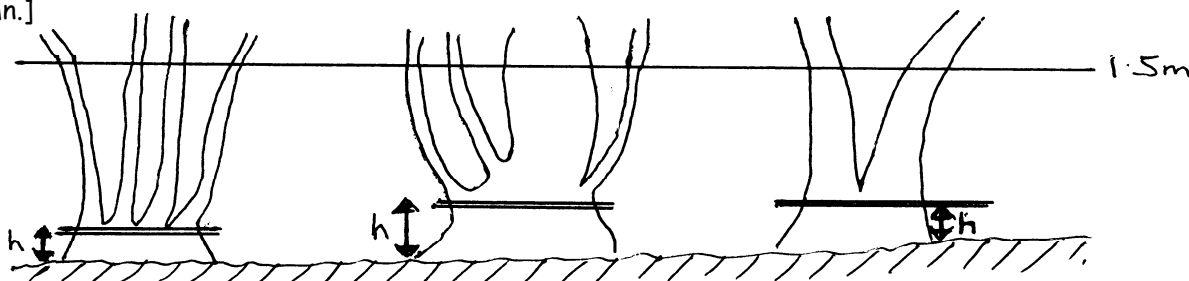
2:d Where to Measure the Girth

The girth should be measured at a height of **1.5m above the ground** or 1.5m above the **highest** point of the surrounding ground (if the ground is uneven). A leaning or collapsed tree should be measured on its lower side.

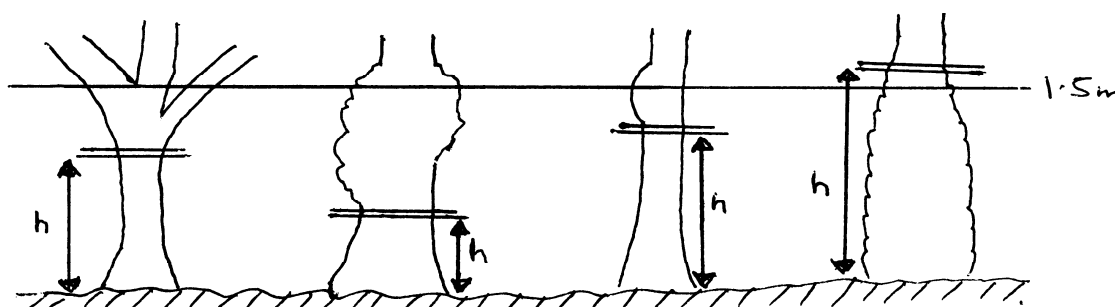


For trees with flared bases that taper quickly (eg Wellingtonias), it is especially important to measure at 1.5m **vertically** above ground - don't measure the height along the sloping trunk.

For coppiced and multi-stemmed trees measure the girth below any branching. This may well be at ground level. [If the girth of individual branches is over 3m this can be recorded in the comments column.]



If the tree forks or is swollen at 1.5m, then measure at the **narrowest point below 1.5m** and measure the height from the ground at which that girth measurement was taken. [In exceptional circumstances you may need to measure just above 1.5m if the bulging is from ground to just above 1.5m]



h = height of girth

For a tree with a completely burred trunk, or covered with ivy, the measured girth will be an estimate and should be recorded as such. [A 5cm deep layer of ivy all round a tree equates to a 0.3m increase in apparent girth.]

Some cedars and cypresses have very low branches - often resting on the ground. If there is an obvious main stem measure this at 1.5m (even though the branches are below 1.5m). If the trunk splits then treat as a multi stem and measure below the split. There may well be a combination of split trunk and low branches. A photo is particularly useful here. Try to take one to show the branching detail as well as a photo of the whole tree.

A 1.5m long stick is useful to hold against the tree for accurate height measurement and can also be used to hold back bracken and nettles!

Make sure the tape is level around the tree. Don't stretch the tape. You may need to take the measurement two or three times to ensure accuracy. If there is a discrepancy between repeated measurements, choose the smallest value. Periodically check your tape to make sure it is not stretched or damaged.

2:f Using the Paper Recording Form - column by column

Fill in your Parish, recorder ID and name. If your Parish has designated areas note that too.

TREE NUMBER - This is for your reference only. [Each tree will be allocated a master record number when added to the WDVTS database, and your tree number will be stored as 'Recorder Tree Number'.]

DATE - Enter the date when the tree was measured..

GRID REFERENCE - Record the 10 digit grid reference (without the SU). Waymarks are a very useful way of capturing grid references whilst in the field. [See section 5]

TREE LOCATION - Give an approximate address or location: *e.g. in road outside 1 Oaktree Grove, in front garden of 29 High Street, Hawkedon School Field, field to the south of School Road, etc.*

HEIGHT at which GIRTH MEASURED - Record the height at which you measured the girth. [See above for details.]

GIRTH - Record the girth measurement. Indicate if it is estimated. [See above]

NAME - Enter the genus, species or common name of the tree. If you are not sure, enter "unknown" and, if possible, enclose a leaf when submitting your records.

PHOTO - Just indicate here how many photos you've taken (if any). Extra information can be put in the Comments column. [You will need to list photo filenames on the Excel sheet.] **TIP:** If you have the date and time set correctly in your camera, and jot down the time you take a photo, it will help identify them later.

TREE FORM [M=maiden; P=pollard; C=coppice; T=multi-stem; S=stump; X=unknown]

Maiden	A single stemmed tree that has never been cut to stimulate growth.
Pollard	Cut at height of 2-3m to produce new shoots
Coppice	Cut at or near ground level to produce new shoots
Multi stem	A single tree which has naturally produced multiple trunks at or near ground level
Stump	Remains of a mature tree that has been cut back to a single trunk remnant. It may be dead, or alive and sprouting.
Unknown	Form cannot be determined. (If you are unsure then choose this option.)

NOTABLE FEATURES & LIVING STATUS - Record any distinguishing features of the tree.

There are two pre-defined lists, one relates to the tree's condition and the other to what grows on or lives in the tree (designed largely to agree with the Woodland Trust lists). [See section 3:b.] More details are given on Excel recording sheet.

SETTING - There is a pre-defined list of settings. [See section 3:b.] Choose the one or two that are most appropriate.

ACCESS - Is there public access? Is it possible for other people to visit this tree? There are 4 options here:

- ? - Don't know
- ✓ - Public access - anyone can visit this tree
- X - No public access - the tree is on private land and permission is required to view it.
- S - Visible to public - the tree is on private land (or don't know), but can be seen from public land (eg from a footpath) - permission is not required to view.

ACTION? - If you want to carry out any action at a later date, tick this column and detail the action in the Comments column, the tick indicating that the Action column on the Excel sheet should be used. Possible actions could be: *get/check TPO, check state of tree next month,*

need to confirm identification, must take photo in winter. [NB: Observations such as *tree at risk, tree needs attention, etc* are not actions and should be in the Comments column on the Excel sheet.]

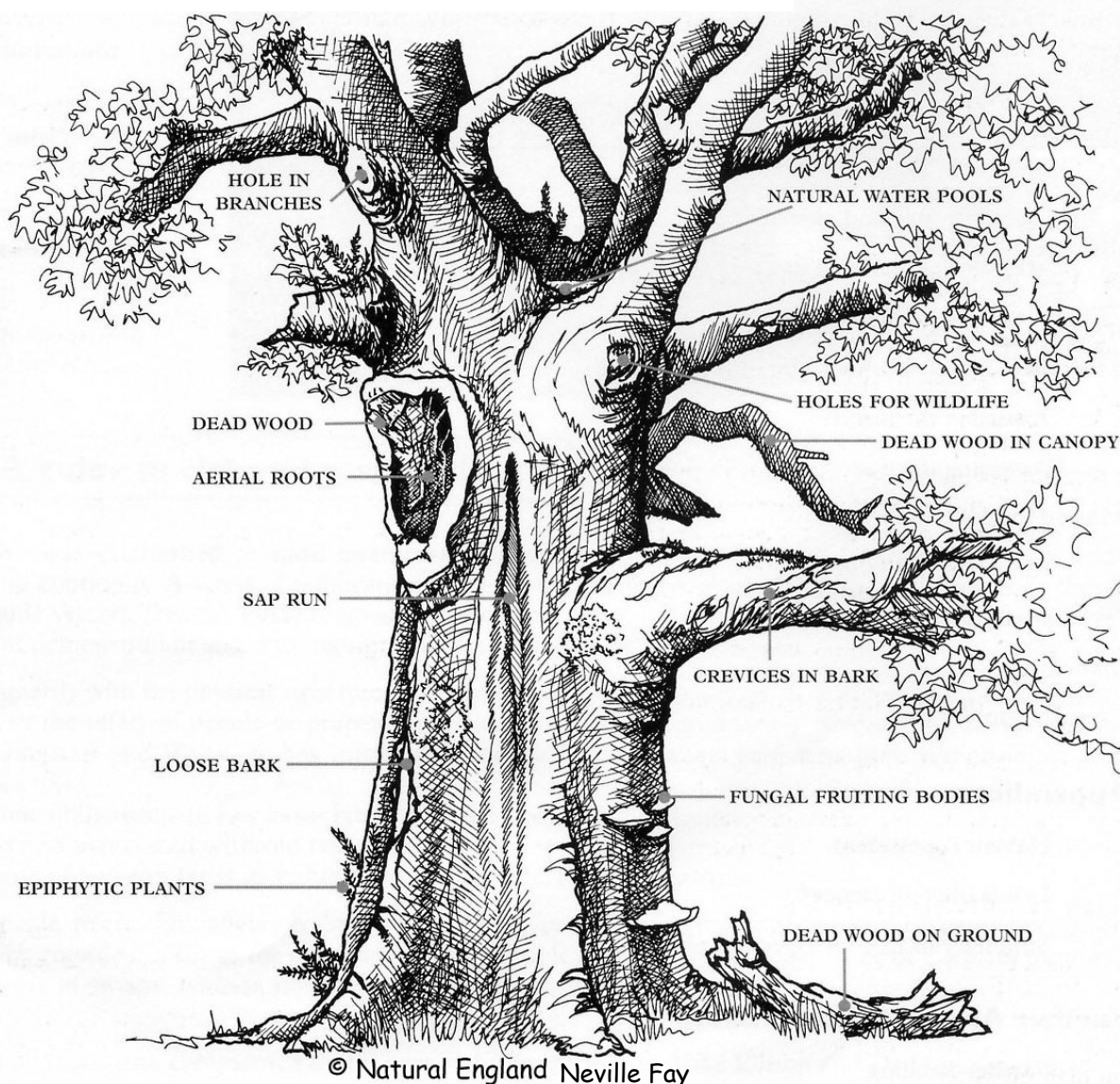
COMMENTS - Here you can enter any other relevant information about the tree. It may have associations with historical events; or have a significant visual impact. If you want to designate a tree - do so here.

You can also use this column as an overflow for other columns on the recording sheet.

NB: A laminated sheet listing items in all the drop-down lists (except species) is available to take with you in the field.



FEATURES CHARACTERISTIC OF A VETERAN TREE:



3. THE EXCEL FILES

The three Excel files work with Excel 97, 2000, 2002 (XP), 2003 and 2007 (but there is a refresh problem on one warning message in 2007). It also works with Open Office v2.3 (where there is the same refresh problem). It does **not** work with MS Works or Excel 5/95. With computer security in mind, macros have not been used in any of the WDVTS files described here, and therefore you can "disable macros" if asked.

Each file has a separate page of instructions, detailing how you should use it, so you do not have to have this handbook beside you when entering the data. In addition, there are instructive comments attached to all heading cells. Position the mouse over the cell to read the comments.

The master database is a *csv* file, and therefore any formatting (bold, colour etc) will not be retained.

Each record row must be self-contained. Do not enter "same as above" !!

3:a The Recording Sheet (WDVTS-Recording sheet.xls)

There are 5 pages in this Excel file:

- a. the recording sheet itself
- b. an instructions page
- c. the feature combiner
- d. tree list
- e. other lists

Most of the columns have validation checks. These are detailed in comments attached to the column headings and in the table below. Please note that in Excel 97 and 2000 and in Open Office, the validation is nullified if you paste into a cell. Some of the columns have drop-down lists. Click on the arrow at the right-hand side of the cell and a drop-down list appears. For longer lists you need to scroll through the options. You can type into these cells, instead of using the drop-down list, but if your input is not on the validation list you will get an error message. The drop-down list for tree name is obviously rather long and so the 8 most frequently encountered trees are at the top of the list. The validation list is much longer than the drop-down list. There are 89 trees in the drop down list and 205 different names in the tree list, but 530 in the validation list (including both common and specific names). So, for example, *Common (English) Yew* is on the drop-down list, but *English Yew* and *Common Yew* are equally acceptable if typed in. Case is not significant. You can type in either a common name or a specific name. If the name you type in is not recognised, look at the tree list to check whether the spelling is correct or to find an alternative name that is recognised. If you are sure of the identification but it is not recognised, please leave the name and put a comment in the Comments column confirming the identification.

The lists are there for reference and to give additional explanation. Items in the tree list are mutually exclusive, but this does not apply to settings and even less so to notable features. Hence there are two settings columns, to allow you to choose up to 2 settings. Although you may want to use different terms to describe the setting, please only choose from the ones listed. This will enable more efficient analysis and allow the information to be forwarded to the Woodland Trust. [See section 3:b]

The 'Feature Combiner' sheet provides a facility for producing a combined list of up to 6 notable features that can be copied onto the recording sheet. Read the instructions at the top of the sheet. You can type anything into the Notable Features columns and don't have to use the listed

terms, but if they are used it will result in consistency and easier analysis. Data will only be forwarded to the Woodland Trust if the correct key words are used.

Please note that if you are using Excel versions 2000 or 97, or Open Office, and copy between different columns using 'copy and paste', you can change the properties of the destination cell (you copy validation, formulae, etc as well as the values) and this can have unwanted consequences. Generally do not copy between columns (but if you do, then use *Paste Special, Values*, instead of *Paste*). Excel versions 2002 (XP), 2003 and 2007 do not seem to have this problem (values only are copied).

The recording sheet contains the following columns:

COLUMN	STATUS		NOTES
A Parish Code	Essential		typed once at the top & then repeated automatically as recorder ID is entered
B Recorder ID	Essential		
C Recorder Tree No	Optional		for recorder use only
D Area (if applicable)	Optional		not all parishes have areas
E Date Recorded	Essential		must be: day-month-year
F Grid Ref -Easting	Essential		5 digits
G Grid Ref - Northing	Essential		5 digits
H Tree Location	Desirable		describing where the tree is
I Height of Girth (m)	Essential		usually 1.5m
J Girth (m)	Essential		
K Estimate ?			leave blank if not estimated
L Common Name or Specific Name	Essential	Drop-list	'Unknown' is an option
M Species	Automatic		cannot type into this field
N Photo(s)	Desirable		
O Tree Form	Essential	Drop-list	
P Living status	Essential	Drop-list	
Q Notable Features 1 Additional Tree Features	Desirable	Drop-list	up to 6 features can be combined using the feature combiner
R Notable Features 2 Tree as Habitat	Desirable	Drop-list	up to 6 features can be combined using the feature combiner
S Setting 1	Desirable	Drop-list	
T Setting 2	Desirable	Drop-list	leave blank if not needed
U Access	Desirable	Drop-list	
V Action needed	Optional		
W Comment	Optional		
X Notes	Optional		for communication with administrator, does not go into the database

3:b Drop-down lists

Trees in the drop-down list

Oak	Fir	Plane
English Oak	Douglas Fir	London Plane
Ash	Noble Fir	Oriental Plane
Field Maple	Gingko	Plum
Lime	Hawthorn	Wild Plum
Pine	Hazel	Poplar
Willow	Holly	Aspen
Yew	Hornbeam	Black Poplar - wild
~~~~~	Horse Chestnut	Black Poplar hybrid
Conifer	Red Horse Chestnut	White Poplar
Unidentified	Indian Bean Tree	Redwoods
~~~~~	Lime	Coastal Redwood
Alder	Common (hybrid) Lime	Dawn Redwood
Apple	Large-leaved Lime	Giant Sequoia (Wellingtonia)
Ash	Small-leaved Lime	Swamp Cypress
Aspen	Maidenhair Tree	Rowan (Mountain Ash)
Beech	Maple	Sweet Chestnut
Common Beech	Field Maple	Sycamore
Copper (Purple) Beech	Norway Maple	Tulip Tree
Birch	Monkey Puzzle (Chile Pine)	Walnut
Downy Birch	Mulberry	Wellingtonia
Silver Birch	Black Mulberry	Whitebeam (Common)
Blackthorn	White Mulberry	Willow
Bullace	Oak	Crack Willow
Cedar	English (Pedunculate) Oak	Weeping Willow
Atlas Cedar	Holm Oak	White Willow
Blue Atlas Cedar	Pin Oak	Yew
Cedar of Lebanon	Red Oak	Common (English) Yew
Deodar Cedar	Sessile Oak	Irish Yew
Western Red Cedar	Sessile x English hybrid Oak	Unknown
Cherry	Turkey Oak	
Wild Cherry	Pear	
Cypress	Pine	
Lawson Cypress	Austrian Pine	
(Swamp Cypress)	Corsican Pine	
	Scots Pine	



Clares Green Field LWS, Shinfield.

All data recorded is passed to TVERC, but only data that complies with the Woodland Trust categories is passed to them. Our drop-down lists contain additional items to those required by the Woodland Trust. Any differences are indicated in the tables below.

Tree Form categories

Maiden	A single stemmed tree that has not been cut to stimulate growth. (It is still a maiden even if it has had tree surgery.)
Pollard	Cut at height of 2-3m to produce new shoots (sometimes cut lower).
Coppice	Cut at or near ground level to produce new shoots
Multi stem	A tree which has naturally produced multiple trunks usually at or below about one metre.
Stump	Remains of a mature tree which has been cut back to a single trunk remnant. It may be dead, or alive and sprouting. It can be tall.
Unknown	Form cannot be determined.

photos 1114, 1195, 2199, 2321, 20 & 2068



Pollard



Multi-stem



Coppice



Maiden



Living Status categories

At least one of the Alive / Dead conditions should be specified

Living Status	Comments	Woodland Trust category
Alive - fallen	A fallen tree which continues to thrive.	Living status: Alive Standing or fallen: Fallen
Alive - standing	This is the normal case. A standing living tree. This can also include a living stump.	Living status: Alive Standing or fallen: Standing
Dead - fallen	A tree which has fallen and is now dead.	Living status: Dead Standing or fallen: Fallen
Dead - standing	A standing tree or remnant which is dead - this includes a dead stump which remains rooted.	Living status: Dead Standing or fallen: Standing
Possibly dead - fallen	A tree which has fallen and looks dead, but not sure.	Living status: Unknown Standing or fallen: Fallen
Possibly dead - standing	A standing tree (including a rooted stump) which looks dead, but not sure.	Living status: Unknown Standing or fallen: Standing

Notable Features 1 - Additional Tree Features & Condition

Feature	Comments	WT category
Bark missing	significant amounts of missing bark	
Burred	irregular, rough, usually round growths on the trunk	
Declining	tree does not look too healthy! - see also stag-headed	
Epicormic (twiggy) growth	a mass of twigs growing out of the trunk at or below 1.5m	
Felled	felled rather than fallen	
Good condition	healthy tree in prime of life	
Holes or water pockets	in the tree (especially where branches join trunk)	Tree condition
Hollowing branches		Tree condition
Hollowing trunk		Tree condition
Lightning strike	evidence of a lightning strike (blasted tree)	
Missing limbs	naturally missing, rather than pruned	
Pruned (surgery)	evidence of surgery	
Stag-headed	special case of declining (especially oaks)	
Threatened	for any reason eg poor environment, to be felled,	

epicormic growth



hollowing trunk

Notable Features 2 - Tree as Habitat

Features	Comments		WT list
Bats (evidence of)			yes
Rooks present	You can type in the names of any other animals associated with the tree.		
Invertebrates (evidence of)			yes
Ivy			yes
Mistletoe			yes
Unidentified epiphytes	Something growing on the tree - but you don't know what.		yes
Ferns	You can also type in the name of the ferns, lichen or moss if you know them. However you should also include the terms "Ferns" or "Lichen" or "Moss" as a comma separated prefix: e.g.: "Lichen, <i>Parmelia sulcata</i> ". Similarly for any fungi not in the drop list: e.g. "Fungi, <i>Ganoderma applanatum</i> "		yes
Lichen			yes
Moss			yes
	Fungi - specific names for reference & clarification		
Fungi	Unidentified fungi		yes
Beefsteak fungus	Beefsteak fungus	<i>Fistulina hepatica</i>	yes
Birch polypore	Birch polypore Razorstrop Fungus	<i>Piptoporus betulinus</i>	yes
Blushing bracket	Blushing bracket	<i>Daedaleopsis confragosa</i>	yes
Dryad's saddle	Dryad's saddle	<i>Polyporus squamosus</i>	yes
Dyer's mazegill	Dyer's mazegill	<i>Phaeolous schweinitzii</i>	yes
Giant polypore	Giant polypore	<i>Meripilus giganteus</i>	yes
Honey fungus	Honey fungus	<i>Armillaria sp.</i>	
Oak bracket	Oak bracket	<i>Inonotus dryadeus</i>	yes
Porcelain fungus	Porcelain fungus	<i>Oudemansiella sp.</i>	
Scaly polypore	Scaly Polypore	<i>Polyporus squamosus</i>	
Shaggy bracket	Shaggy bracket	<i>Inonotus hispidus</i>	yes
Maitake	Sheep's Head Hen of the woods Maitake	<i>Grifola frondosa</i>	
Southern bracket	Southern bracket	<i>Ganoderma australe</i>	yes
Spindle shank	Spindle shank	<i>Collybia sp.</i>	
Sulphur polypore	Sulphur Polypore Chicken of the woods	<i>Laetiporus sulphureus</i>	yes

Settings categories

Setting	WT except:
Bridlepath / Footpath	
Field	
Field Boundary	WDVTS
Garden (Domestic)	
Hedgerow	
Public or Open Space	
Roadside	
SSSi / LNR / WHS	WDVTS
Woodland / Plantation / Copse	Modified
~~~~~	
Allotments	WDVTS
Ancient Woodland (designated)	WDVTS
Arable	
Archaeological Feature	WDVTS
Avenue	
Boundary (ancient or modern)	WDVTS
Car Park	WDVTS
Cemetery	

Setting	WT except:
Churchyard	
Deer Park	
Ditch	WDVTS
Golf Course	WDVTS
Heathland	modified
Lake / Pond	WDVTS
Landscape Garden	
Market Garden	
Office / School Grounds	modified
Orchard	
Orchard Relic	WDVTS
Parish Boundary	
Parkland	
Railway	modified
River / Stream / Canal Bank	modified
Urban Tree	
Village Green	WDVTS
Other	

*NB: WHS (Wildlife Heritage Sites) are now called LWS (Local Wildlife Sites).*

**Access**

(Can other people visit this tree? Is there public access?)

Don't know	
Public access	anyone can visit the tree
No public access	tree is on private land; not visible from public access; permission required to view
Visible to public	tree is on private land (or don't know), but is visible to the public (eg from footpath); permission not required to view.

*NB: In the above tables WT = Woodland Trust.*

### 3:c Validation Criteria for data entered into Excel recording sheet.

INPUT FIELD	VALIDATION
Parish Code	Must match 2 letter parish code in list
Recorder ID	Text - max length 4 (leading zeros are significant)
Recorder Tree No	Text - max length 10 (leading zeros are significant)
Area	Text - max length 10 (leading zeros are significant)
Date Recorded	dd/mm/yy <i>or</i> dd/mm {can omit year if current year} [or other acceptable Excel format, but not - dd.mm.yy] between: 01/01/2000 and today
Grid Ref - Easting	A whole number between 68606 and 84512 [§]
Grid Ref - Northing	A whole number between 62188 and 85573 [§]
Tree Location	Text - max length 200
Height of Girth (m)	Decimal number between 0 and 1.85
Girth (m)	Decimal number between 1.5 and 15
Estimate?	<i>e or E</i>
Common Name or Specific Name	Must be in the Tree List
Photo(s)	No validation
Tree Form	Must be in Tree Form list
Living Status	Must be in Living Status list
Notable Features 1 Additional Tree Features	Choose from the drop-down list or free input - facility is provided for compiling a list of features
Notable Features 2 Tree as Habitat	Choose from the drop-down list or free input - facility is provided for compiling a list of features
Setting 1	Must be in Setting list
Setting 2	Must be in Setting list
Access	Must be in Access list
Action needed	Text - max length 200 characters
Comment	Text - max length 250 characters
Notes	Text - max length 250 characters

[§] These grid validation figures are specific to Wokingham Borough. Areas outside the Borough have their own spreadsheets with different validation values for these fields.

NB: All lists are detailed in the Excel file (*WDVTS-Recording sheet.xls*).

### **3:d Corrections and Additions to existing records**

Data already in the database may be corrected or updated if necessary.

Do NOT put amended records on the normal recording sheet - that would result in the records being treated as a new ones and the trees would appear twice in the database.

When amending any record, you must specify the *master record number*, *recorder code* and the original *grid reference* of the record to be amended.

A **master record number** is allocated to a tree when its record is added to the master database. When you submit records, a copy of their entries in the master database is sent back to you, so you will know the master record number of your trees. No additions can be made to a record without the master record number.

### **3:e Corrections (WDVTS-Correction Sheet.xls)**

Use this sheet if you need to change any information already in the database. (This is most often the grid reference.) You can also add photos using this sheet if you are making changes at the same time as adding photos. Instructions are given on a separate page in the Excel file.

It is important to note that when you submit data for correction, the previous entry will be **replaced** by the new one. It is not appended. You should ensure that no data are lost inadvertently by assuming otherwise. (So, for instance, if you want to add a notable feature to those submitted originally, you must enter the original features AND the new features in the appropriate cell.)

### **3:f Updates (WDVTS-Update Sheet.xls)**

We want to note when a veteran tree has been cut or blown down, or if there has been a major change in the setting (for instance, the tree was in a field when originally recorded, but is now in the middle of a housing estate). Use the update sheet for this. The information will go into a new 'Updated Status' column in the database. In this case the new updated status information is added to any existing updated status data.

If you are submitting photos for an existing record (without any corrections to the data), then use this update sheet.

As with the other Excel files, there are instructions on a separate page within the file.

### **3:g Deletions**

Should you want to delete a record, tell your co-ordinator, who will contact the data manager.



*"Among all the varied productions with which Nature has adorned the surface of the earth, none awakens our sympathies, or interests our imagination so powerfully as those venerable trees which seem to have stood the lapse of ages, silent witnesses of the successive generations of man, to whose destiny they bear so touching a resemblance, alike in their budding, their prime and their decay." John Muir, 1868*

## 4. SUBMITTING PHOTOS

We'd like a photo for all the trees in the database. If possible submit digital photos. The association has a digital camera that can be borrowed for this purpose. If you use a non-digital camera, your printed photos or slides could be scanned and returned to you. Check with your co-ordinator. The instructions in this section apply to ALL submissions to the data manager.

Submitting data to the database without associated photographs is a simple matter of sending in the completed spreadsheet. This can be by email, on a USB Memory device or a writeable CD. Generally e-mail is the easiest and most cost effective. However, when photograph files are included there may be problems with e-mail. We want to capture the photos at the highest resolution available and this means the *jpg* photograph files can often be very large. Many e-mail programs reduce the resolution of photo files automatically, which means that resolution is lost. For this and other reasons it is preferable to use either a USB memory device or a writeable CD. There are a number of the USB memory devices available for loan to facilitate this. Ask your co-ordinator if you want to borrow one.

The photo *jpg* files and the spreadsheet that relates them to the tree data must be placed in a single folder. If more than one spreadsheet is to be submitted, a separate folder should be used for each spreadsheet and its associated photos. Multiple folders can be submitted on a single CD/USB-stick.

- ❖ The folder must contain all the photo files referenced in the spreadsheet.
- ❖ The folder should not contain any photo files that are not referenced in the spreadsheet.

Photos **MUST** be *jpg* files; but the filename can be anything you want. You do not have to rename your photo files (you can use the original camera file name), but if you do, you should use a simple naming scheme without embedded spaces and certainly no commas. The photo names entered on the spreadsheet must be exactly the same as the supplied file name and simple names make this easier to achieve. It is recommended that you do NOT use the grid reference since it is very error-prone. In the master database, all photos will be renamed to give them a unique reference number. A cross-reference to the original filename is maintained.

### 4:a Specifying photos on the Excel sheet

Enter the filename in the photos column. There is no need to put *.jpg* after the filename because if missing it will be assumed. If there is more than one photo for a tree, then list all filenames separated by **COMMAS**. For this reason it is essential that the filenames do not contain commas. If one photo relates to more than one tree, then enter the same filename in all relevant records. (You might like to put some text on the image to identify which tree is which if there is more than one in the photo; or you could put a note in the Comments column. Remember, in the master database your original filenames will be replaced, and any descriptive information in that filename will be lost.)

### 4:b Submitting photos with your original data

When you submit an Excel record sheet, ensure that all the photos referred to in that sheet are submitted at the same time. If there is a mismatch (photos referred to but missing, or photos submitted that are not listed) none of the records will be added to the database, pending clarification.

#### 4:c Submitting photos at a later date

If you submit additional photos of a tree after its record has been processed, send them in using *WDVTS-Update Sheet.xls*. As with other amendments, you need give the *master record number*, *recorder code* and the original *grid reference*, as well as the filenames of the photos.

For particular trees it would be nice to have photos at various time of the year.



GOING,  
..... GOING,  
..... GONE



tree 194

July 2006

May 2008

Jan 2009



June 2006

tree 120



March 2008

#### 4:d Removing photos from the database

Use *WDVTS-Correction Sheet.xls* if you want to remove a photo from a record. This does not actually delete the photo; it deletes the reference to the photo, so that if you have referred to the same photo for more than one tree, you can safely remove the reference for one of them without losing the others.



## 5. GRID REFERENCES AND GPS

Please try and measure the grid reference as accurately as possible. The target is  $\pm 10\text{m}$ .

Use a GPS where possible. (GPSs are available to borrow from WDVTA - ask your co-ordinator.)

You can obtain the required level of accuracy using a 1:25,000 map if there are suitable reference points near the tree. For this you will need a scale or romer. There is a vernier romer for producing a ten-figure grid reference from a 1:25,000 map, in the 'Recording Information' section of our Yahoo site and on the BTCV web site:

[http://www2.btcv.org.uk/display/veteran_trees_romer](http://www2.btcv.org.uk/display/veteran_trees_romer).

Using a 1:5,000 scale map will obviously produce a more accurate reference, although we have not got a romer for that. Your co-ordinator should be able to provide a 1:5,000 map of the survey area with a 1km grid. At this scale 1mm corresponds to 5m and so a 5-digit grid reference can be obtained by measuring from the kilometre grid lines in mm multiplying by 5, and adding to the km grid reference multiplied by 1000. For example, the Easting for a tree located on a map 19mm east of the Easting kilometre line labelled 68, would be  $68000 + 19 \times 5 = 68095$ .

Most GPS units can show the location in OS format with a two-letter prefix followed by two 5-digit numbers. The prefix refers to a 100km square of the national grid. Our survey area lies wholly within one square (prefix SU) and so there is no need to record it. The Excel sheet requires all 10 digits.

The first five digits is the EASTING and is located horizontally along the bottom edge of a map, the last five digits is the NORTHING and is located vertically along the side of a map. Usually, on a GPS unit the top 5 digits is the Easting, with the Northing displayed below.

The accuracy of GPS readings depends on the number of satellites available and their signal strength, which is often adversely affected by tree cover or high buildings, and also varies at different times of the day. Most GPS devices will display their accuracy or estimated positional error (EPE), although often not on the same screen as the grid reference. Some recorders like to record the EPE along with the grid reference, but remember that the EPE varies with each reading. You cannot take one EPE reading for several grid references. With the geko and etrex units you have to switch screens to read the EPE and it is not saved with the grid reference when waymarked. If you want to record the EPE, do so in the Comment column; but if you correct the grid reference using a map, the EPE becomes meaningless and should be removed from the Comments column.

Allow time for the GPS unit to acquire its position from the satellites. This may take a few minutes after it is switched on. Even after the GPS indicates it has a position it is advisable to allow a further few minutes to obtain a more accurate position. It is more difficult to acquire a signal if there are trees (!) or tall buildings in the immediate vicinity. If possible, step into an open area whilst the GPS is acquiring and then walk back to the tree to take your reading. Check the reading a few times (to ensure that you are getting the same reading) before writing it down (or waymarking it). In woodland you may not be able to get a stable reading. In such circumstances an accurate position can be obtained by triangulation, but this requires specialist equipment to be accurate. A simpler alternative, if it is possible, is to take two readings in the open at equal distances from opposite sides of the tree. From that you can calculate the grid reference of the tree by finding the mean of the two Eastings to give the Easting of the tree and similarly for the Northings.

The Ordnance Survey reckons that 7m accuracy is as good as you can get using standard GPS equipment. This error results not only from the accuracy of the GPS, but also from the conversion to OS grid reference from global latitude-longitude measurements that the GPS actually measures. Details of the relationship between lat-long and grid references can be found on the OS web site: [www.ordnancesurvey.co.uk/oswebsite/gps/information/coordinatesystemsinfo/index.html](http://www.ordnancesurvey.co.uk/oswebsite/gps/information/coordinatesystemsinfo/index.html)

So even with carefully taken accurate GPS readings, your reading could still place your tree on the wrong side of the road. Hence the location description is very important. Try to be precise with this description and include road names, house numbers etc. It is fairly easy to give a useful location in a town or street setting, but more difficult in the middle of a field.

Of course another source of error is incorrect recording of the GPS reading. All you can do about this is pay careful attention to what you write down! Using the waymarking facility can help here, since you can recall the reading from the GPS device when you are completing the spreadsheet. Compare each of your grid references with those of other trees measured in the same area to make sure they have similar values.

After submitting your survey data, you will receive a database extract of that data and a map with the trees plotted. You should check the position of the trees and amend if necessary (either using the correction spreadsheet or informing your co-ordinator). It is important to submit records fairly soon after the actual survey so that you can remember where the trees are and realise if they are plotted in the wrong place.

### 5:a GPS set-up

Ensure that the map datum of your GPS unit is set to **OSGB (Ordinance Survey Great Britain)**. GPS units often default to a map datum selection of WGS84 (World Geodetic System 1984). If you have borrowed a GPS from the WDVTA, this setup will already have been done for you, and many GPS units will automatically select the OSGB datum if the position format is OS. Ask your co-ordinator for help if you are unsure. A co-ordinate referenced to WGS84 datum has a different value from the same co-ordinate referenced to another datum. In the case of the datum used in Great Britain (Ord Srvy GB; also known as OSGB36 or GB1936) the difference in co-ordinate values between this and WGS84 datum is approximately 0.08' in longitude (or 100 metres in Easting), 0.01' in Latitude (or 70 metres in Northing). The difference can vary dramatically depending on the location. Thus errors of hundreds of metres can occur if the settings are not specified correctly:

Examples of different readings for the same locations:-

Map datum	Askew Drive, Spencers Wood	Brunstock Beck, Didcot
WGS84	SU 71636 67611	SU 52772 91685
Ord Srvy GB - OSGB	SU 71734 67140	SU 52870 91214

Map datum	Latitude	Longitude
WGS84	N50°00.0000'	W1°00.0000'
Ord Srvy GB - OSGB	N49°59.9647'	W0°59.9126'
European 1950	N50°00.0553'	W0°59.9167'

For the Garmin 38, 45, 12, 12XL, eTrex family: - on the **navigation setup page**:

set **position format** to '**British Grid**' (alternatives include lat & long (ddd°mm'ss.s", ddd°mm.mmm'))

set **map datum** to '**Ord Srvy GB**' (alternatives include WGS84, European 1950, European 1979)

**It is essential to use OSGB**

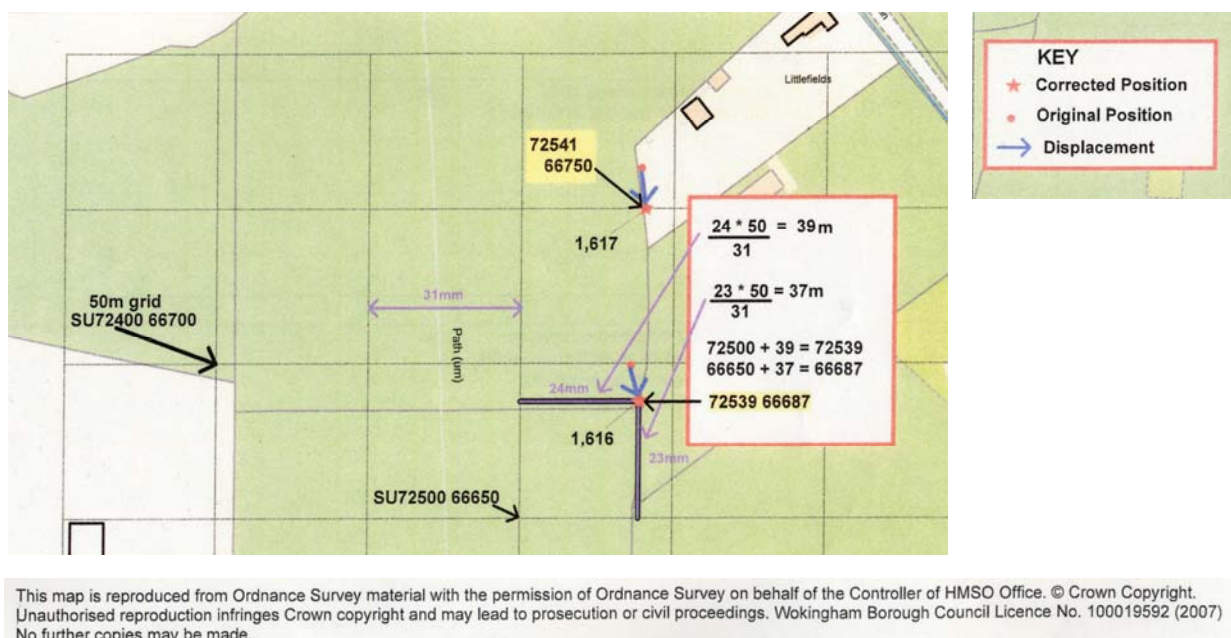
If your GPS unit is WAAS enabled, make sure it is turned on.

## 5:b Correcting a grid reference

When the data is processed, a data extract and a map are sent to the recorder via the co-ordinator. Both files are *pdf* files. The map is provided so that you can check the positions of the trees. The *pdf* can be printed, but it is better to examine it on-screen, where it can be zoomed in to see more detail. The grid means that measurements can be taken from the screen (since all measurements are relative and not absolute).

If the trees are not in the correct positions, the map can be used to get an accurate grid reference. Maps are 1:1250 OS maps. WDVTA is licensed to provide these for the specific purpose of checking the accuracy of the grid references of recorded trees in Wokingham Borough. Unfortunately, maps cannot be provided for mapping trees outside the WBC area or for other purposes. The maps must not be copied. The actual size and scale of the map of course depends on the area being mapped. A grid overlay is provided so that you can calculate a new grid reference. Originally, the size of this grid was chosen as the most appropriate for the size of the map; but co-ordinators requested that a single consistent grid size be used and hence this is now supplied. The grid is a 50m square.

If a tree is in the wrong place, the grid reference can be corrected as shown below:



In the map extract above the GPS readings are shown by the red dot. However, these readings do not place the oaks on the boundaries. The red stars show their correct positions. The map is overlaid by a 50m grid. To calculate the correct grid reference:

	In above example:-
Measure the length of the side of the grid square	31mm
<u>Easting correction:</u>	
• Check the Easting value of the vertical grid line to the left of the tree	72500
• Measure the horizontal distance, from that grid line, to the correct position of the tree	24mm
• Calculate the actual distance: divide the horizontal distance measured, by the length of the grid side, and multiply by 50 (because 50m is the actual size of the grid side).	$24 \div 31 \times 50 = 39m$

- Calculate the new Easting by adding the calculated correction  $72500 + 39 = 72539$

Northing correction:

- Check the Northing value of the horizontal grid line below the tree 66650
- Measure the vertical distance, from that grid line, to the correct position of the tree 23mm
- Calculate the actual distance:  
divide the vertical distance measured, by the length of the grid side,  
and multiply by 50.  $23 \div 31 \times 50 = 37\text{m}$
- Calculate new Northing by adding the calculated correction  $66650 + 37 = 66687$

The corrected grid reference is SU 72539 66687

[The measurements printed on the map above are the measurements obtained by taking a ruler to the printed A4 map. The map was cropped to fit on this page and hence the measurements are not the same as stated on the map. However, you can check out the method by measuring the lines above and using the same procedure. You will get the same grid reference - because this method uses proportions and it doesn't matter what the actual measurements are. You can either use the printed version of this page or look at the *pdf* version on screen and zoom in.]

### 5:c Obtaining a grid reference using on-line resources

You can also get a grid reference from Magic Maps (<http://www.magic.gov.uk>), but be warned that even with a fairly fast internet connection, this application can be very slow. This site is useful for urban trees (you can get the right side of the road!), but of less use for rural settings. Interactive tools allow you to zoom in on your area and the 'Where Am I?' tool gives you a grid reference when you click on the location of your tree. You are given a "full grid reference" of 12 digits and a "100m grid reference" of 6 digits. To get a 10 digit reference you need to use the 12 digit reference and remove the 4 prefix from the Easting and the 1 prefix from the Northing.

Google Earth (<http://earth.google.com>) is a free application that can be downloaded and installed on your computer (running Windows XP or later - check system requirements on the Google Earth website). This will give you a latitude and longitude from an aerial photo view. The lat-long can then be converted to a grid reference, using a spreadsheet program which is in the Recording Information section of our Yahoo site. The OS also offer a conversion facility, which is slightly more accurate than the spreadsheet. See: <http://gps.ordnancesurvey.co.uk/convert.asp>

Google Maps (<http://maps.google.co.uk>) doesn't give a grid reference or latitude/longitude. However, it does display aerial photographic views with a scale and may be useful if you cannot use Google Earth.



## 6. ESTIMATING THE AGE OF A TREE FROM ITS GIRTH

As a general rule a tree will be a veteran if it has a girth (measured at 1.5m from the highest point of the surrounding ground) of at least 3m, but this does vary with species:

Birch species, Hawthorn.	2m
Field maple, Rowan, Grey and Goat Willow, Hornbeam, Holly, Cherry, Alder.	2.5m
Oak species, Ash Scot's Pine, Yew, Elm species.	3m
Lime species, Sycamore, Horse Chestnut, Poplar species, other Pine species, Beech, Sweet Chestnut, White and Crack Willows.	4.5m

The mean increase in girth of mature trees with a full crown and growing in good condition is 2.5cm (or one inch) per year. This applies to most species of large trees, whether coniferous or broad-leaved. Trees grow faster when they are young and slower when old, but averaged over many years the increase in girth is about one inch per year. Obviously with very old trees this will be an underestimate. There are species that grow much faster, and a few that grow much slower; but in general it is the growing conditions, rather than the species, that determines the rate of growth. Thus a tree of girth 3m is usually 100 years old if it is growing in good conditions, but 200 years old if growing in a wood, and 150 years old if slightly crowded, as in an avenue.

For **Oaks** growing in good conditions the growth rate is 3.8-5cm per year for their first 60-80 years, and then 2.5cm per year until they have a girth of 6.5m. Thereafter growth slows, the decrease depending on the loss of leafing crown. They seldom survive with a growth rate of less than 2.5cm in 5-6 years.

### Major exceptions:

Normal growth of 5cm - 7.6cm (2"-3") per year:

Wellingtonia (rarely to 15cm), Coastal Redwood, Low's Fir, Grand Fir, Cedar of Lebanon, Monterey Cypress, Sitka Spruce, Douglas Fir, Western Red Cedar, Western Hemlock, Cricket-bat Willow, Black Italian and other hybrid poplars, Wingnuts, *Nothofagus* spp, Red and Chestnut-leafed Oaks, Hungarian and Turkey Oaks, Tulip-tree, London Plane, and most *Eucalyptus* spp

Normal growth considerable less than 2.5cm (1") per year:

Scots pine, Norway Spruce, Horse Chestnut, Common Lime, Yew and most small-growing trees.

**Yew** has a unique growth pattern. They follow the standard 2.5cm per year for the first 100 years, but then it falls to about 1.3cm per year. Gradually, over 400-500 years it falls to 2.5cm in 5-15 years, whilst the crown is still in full vigour and increasing its spread annually; but they can return to formative rates of growth at almost any stage. Hence it is difficult to estimate their age from their girth. As a rough guide:

2.5m = 100-150 yrs; 5m = 300-400 yrs; 6m = 500-600 yrs; 9m = 850-1000 yrs.

The following tables show more detailed calculations of the ages of certain species. An extended version is on the WDVTA Yahoo site. Additional species included in that version are: Austrian Pine, Beech, Black Mulberry, Cedar of Lebanon, Monkey Puzzle, Robinia, Tulip Tree, Turkey Oak and Walnut. [Most large trees' calculated from Mitchell's generalisation described above. Specific species calculated from White's epidemiologically derived formulae. Although the age-girth relationship is not linear, a linear approximation exists over half-metre ranges and so it is valid to extrapolate (within half-metre ranges) on a *pro-rata* basis. Eg: approximate age of an oak, growing in average conditions, with a girth of 2.75m is  $(115+143)/2 = 129$  yrs.]

### References:

Mitchell, Alan (1974) "A Field Guide to the Trees of Britain and Northern Europe" pub Collins ISBN 0 00 212035 6  
 Rural Development Service (2006) "Environmental Stewardship: Farm Environment Plan Guidance 009"  
 White, John (1998) "Estimating the Age of Large and Veteran Trees in Britain" Information Note 12 pub Forestry Commission129

6:a Estimates of age for certain tree species with girth 2.5m - 5.0m

		Estimated age (years)						
		Girth (m)	2.5	3.0	3.5	4.0	4.5	5.0
<b>Most large trees</b> broad-leaved & coniferous	Growing in good conditions		98	118	138	157	177	197
	Growing in an avenue		153	184	215	245	276	307
	Growing in a wood		205	246	287	328	369	410
<b>English and Sessile Oak</b> <i>Quercus robur</i> <i>Quercus petraea</i>	Champion tree potential (ideal site conditions)		80	100	124	151	182	217
	Good site, open grown, sheltered		102	129	162	199	241	289
	Average site, garden, parkland		115	143	177	216	260	310
	Poor ground and/or some exposure		133	166	204	248	298	354
	Woodland boundary pollard, or open woodland		115	143	177	216	260	310
	Inside woodland		217	297	392	501	625	764
<b>Ash</b> <i>Fraxinus excelsior</i>	Good site, open grown, sheltered		89	117	150	188	232	281
	Average site, garden, parkland		106	137	174	217	265	319
	Woodland boundary pollard, or open woodland		172	244	328	425	536	659
	Inside woodland		138	177	223	276	336	403
<b>Common Lime</b> <i>Tilia x europaea</i>	Champion tree potential (ideal site conditions)		82	96	112	131	153	177
	Good site, open grown, sheltered		80	97	118	142	169	199
	Average site, garden, parkland		80	100	124	151	182	217
	Churchyard		80	97	118	142	169	199
<b>Deodar Cedar</b> <i>Cedrus deodara</i>	Champion tree potential (ideal site conditions)		51	65	81	100	121	145
	Good site, open grown, sheltered		57	72	89	108	130	155
	Average site, garden, parkland		69	89	112	138	169	202
<b>Holly</b> <i>Ilex aquifolium</i>	Inside woodland		113	149	193	243	299	362
<b>Horse Chestnut</b> <i>Aesculus hippocastanum</i>	Good site, open grown, sheltered		89	117	150	188	232	281
	Average site, garden, parkland		100	135	177	225	279	340
	Churchyard		89	117	150	188	232	281
<b>Plane</b> <i>Platanus sp.</i>	Champion tree potential (ideal site conditions)		72	82	93	106	121	138
	Good site, open grown, sheltered		67	83	102	124	149	178
	Average site, garden, parkland		80	100	124	151	182	217
	Churchyard		80	100	124	151	182	217
<b>Red Oak</b> <i>Quercus rubra</i>	Champion tree potential (ideal site conditions)		67	83	102	124	149	178
	Good site, open grown, sheltered		80	100	124	151	182	217
	Average site, garden, parkland		102	129	162	199	241	289
<b>Sweet Chestnut</b> <i>Castanea sativa</i>	Good site, open grown, sheltered		80	100	124	151	182	217
	Average site, garden, parkland		83	106	134	166	202	243
	Poor ground and/or some exposure		100	135	177	225	279	340
<b>Sycamore</b> <i>Acer pseudoplatanus</i>	Good site, open grown, sheltered		67	80	94	111	129	150
	Average site, garden, parkland		67	83	102	124	149	178
	Churchyard		67	83	102	124	149	178
	Poor ground and/or some exposure		83	106	134	166	202	243
<b>Yew</b> <i>Taxus sp.</i>	Average site, garden, parkland		113	149	193	243	299	362
	Churchyard		189	260	344	440	550	673
	Poor ground and/or some exposure		242	340	456	590	741	910

## 6:b Estimates of age for oaks with girth 2.5m - 20.0m

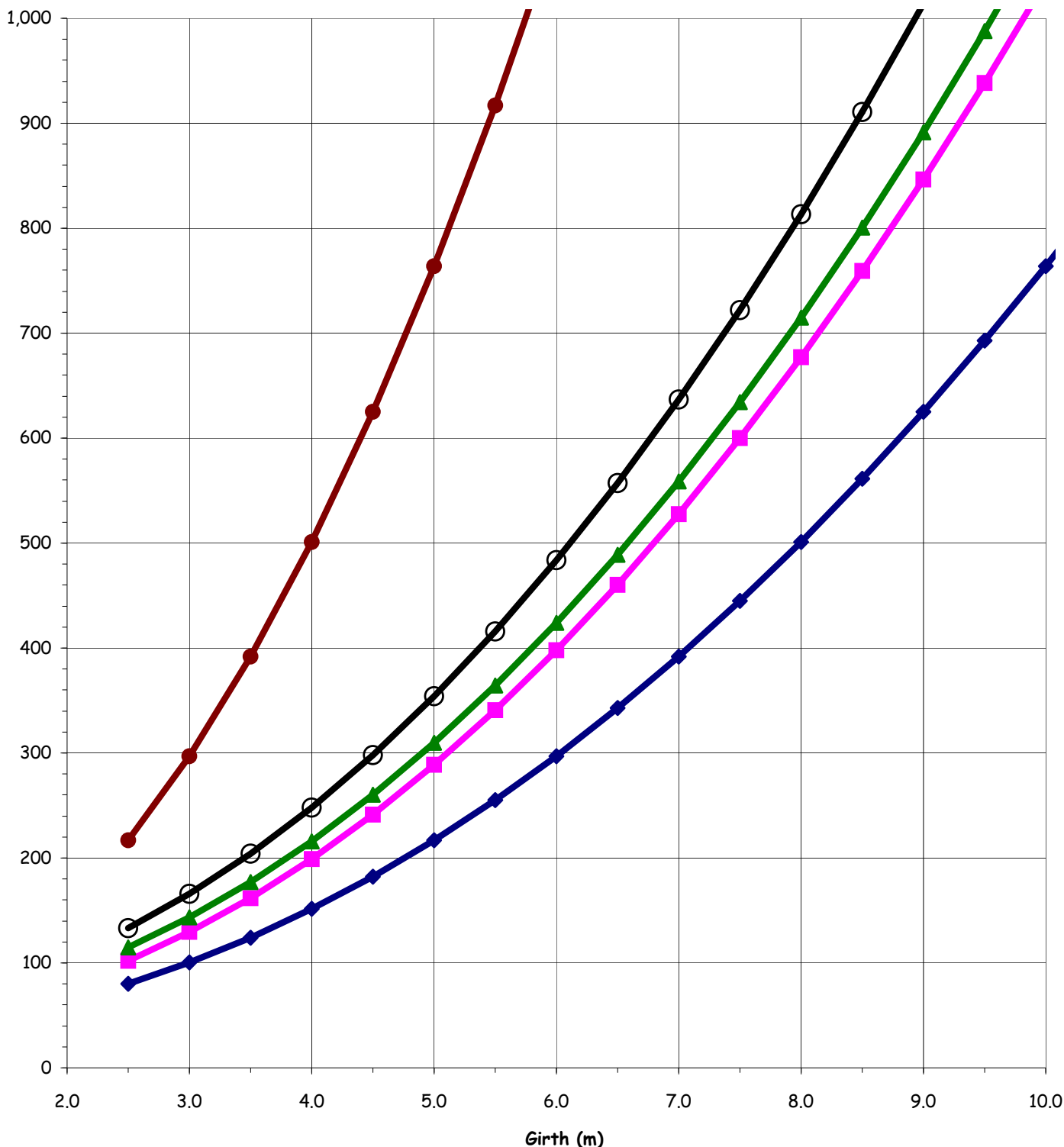
and generalised estimates for most large trees

Most large trees			Girth (m)	English and Sessile OAK ( <i>Quercus robur</i> & <i>Q. petraea</i> )					
Not crowded	Slightly crowded	Crowded		Ideal site	Good - sheltered	Average - gdn/park	Poor - exposed	Open woodland	Inside woodland
98	153	205	2.5	80	102	115	133	115	217
118	184	246	3.0	100	129	143	166	143	297
138	215	287	3.5	124	162	177	204	177	392
157	245	328	4.0	151	199	216	248	216	501
177	276	369	4.5	182	241	260	298	260	625
197	307	410	5.0	217	289	310	354	310	764
217	337	451	5.5	255	341	364	416	364	917
236	368	492	6	297	398	424	484	424	1,084
256	399	533	6.5	343	460	489	557	489	1,267
276	429	574	7	392	528	559	637	559	1,463
295	460	615	7.5	445	600	634	722	634	1,675
315	491	656	8	501	677	715	813	715	1,901
335	521	697	8.5	561	759	800	911	800	2,141
354	552	738	9	625	846	891	1,014	891	2,396
374	583	779	9.5	693	938	988	1,123	988	2,666
394	613	820	10	764	1,035	1,089	1,237	1,089	2,950
413	644	861	10.5	838	1,137	1,195	1,358	1,195	3,249
433	675	902	11	917	1,245	1,307	1,485	1,307	3,563
453	706	943	11.5	999	1,357	1,424	1,617	1,424	3,891
472	736	984	12	1,084	1,474	1,546	1,756	1,546	4,233
492	767	1,025	12.5	1,174	1,596	1,673	1,900	1,673	4,591
512	798	1,066	13	1,267	1,722	1,806	2,050	1,806	4,962
531	828	1,107	13.5	1,363	1,854	1,943	2,206	1,943	5,349
551	859	1,148	14	1,463	1,991	2,086	2,368	2,086	5,750
571	890	1,189	14.5	1,567	2,133	2,234	2,536	2,234	6,165
591	920	1,230	15	1,675	2,280	2,388	2,709	2,388	6,595
610	951	1,270	15.5	1,786	2,432	2,546	2,889	2,546	7,040
630	982	1,311	16	1,901	2,589	2,710	3,074	2,710	7,499
650	1,012	1,352	16.5	2,019	2,751	2,879	3,266	2,879	7,973
669	1,043	1,393	17	2,141	2,917	3,053	3,463	3,053	8,461
689	1,074	1,434	17.5	2,267	3,089	3,232	3,666	3,232	8,964
709	1,104	1,475	18	2,396	3,266	3,416	3,875	3,416	9,482
728	1,135	1,516	18.5	2,530	3,447	3,606	4,090	3,606	10,014
748	1,166	1,557	19	2,666	3,634	3,801	4,311	3,801	10,560
768	1,196	1,598	19.5	2,807	3,826	4,001	4,538	4,001	11,122
787	1,227	1,639	20	2,950	4,022	4,206	4,770	4,206	11,698

NB: Growing conditions are same as in previous table (6:a)-see that for more detailed description.

**6:c Graph of age-girth relationship for oaks**

Age (years)



- ◆ Champion tree potential (ideal site conditions)
- Good site, open grown, sheltered
- ▲ Average site, garden, parkland, woodland boundary pollard, or open woodland
- Poor ground and/or some exposure
- Inside woodland

## 7. APPENDIX

### 7:a Before you start

- ⇒ •Join WDVTA
- ⇒ •Join WDVTA Yahoo Group
- ⇒ •Read Health & Safety documents
- ⇒ •Sign H&S form (and return to co-ordinator) - so that you are covered by WDVTA insurance
- ⇒ •Read at least section 2 of this Handbook

### 7:b Suggested items to take with you

#### *For the survey:-*

- ◆ Tape measure
- ◆ GPS
- ◆ Recording forms and laminated lists
- ◆ Clipboard
- ◆ Map(s)
- ◆ Camera
- ◆ Spares batteries (for cameras & GPS)
- ◆ 2 pencils & a rubber (or pen)
- ◆ WDVTA ID card
- ◆ WDVTA leaflet
- ◆ Tree ID guide
- ◆ Binoculars
- ◆ Stick

#### *For yourself:-*

- ◆ Small rucksack / shoulder bag
- ◆ Suitable clothing and footwear
- ◆ Waterproofs, umbrella
- ◆ Sun cream, hat, insect repellent
- ◆ First Aid kit
- ◆ Water and snack
- ◆ Mobile phone

Tape measures needs to be long (10m) and flexible (steel rules aren't flexible enough).

WDVTA has several suitable tape measures and GPS units as well as a digital camera available for surveyors to borrow.

Laminated sheets (A4) are available, with the diagrams and explanations from section 2:d on one side, and a list of the drop-down options, together with some suggested abbreviations for use in the field, on the other side.

Co-ordinators can supply surveyors with large-scale maps of their survey area. Street maps are useful in urban areas, and 1:25000 OS maps for rural areas.

WDVTA leaflets and ID card are available from co-ordinators. It is useful to have a supply of leaflets/membership application forms to give to anyone who is interested in, or queries, what you are doing.

The Woodland Trust recommends taking a 1.5m stick with you, to indicate the height at which to measure the girth, and to bash down nettles and brambles, so that you can get to the tree!!

