

Project: Partnership for the development of training standards for tree assessors in Central and Eastern Europe

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TREE
ASSESSOR

Tree assessment documentation

A manual for Tree Assessors

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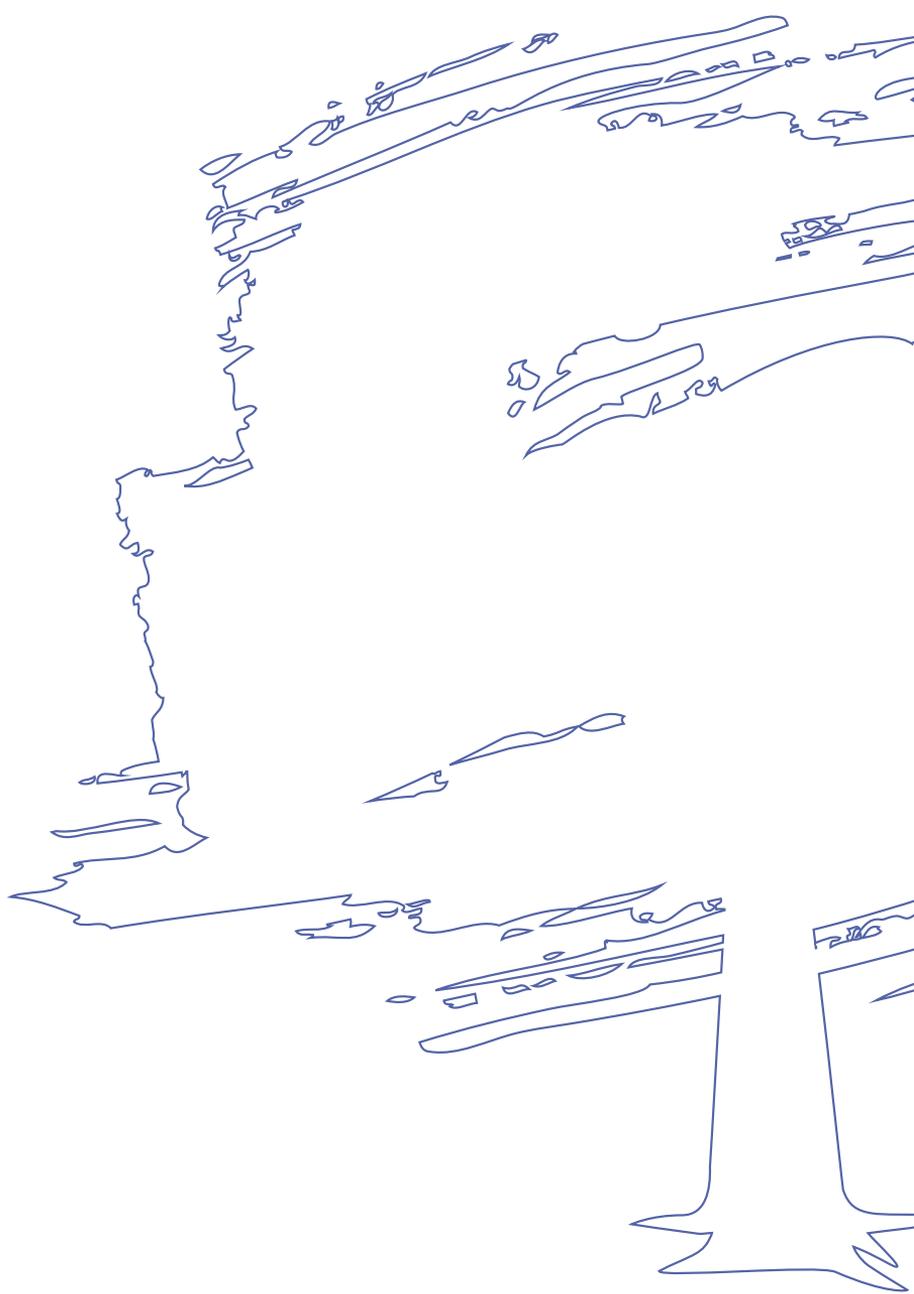


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Wrocław 2021



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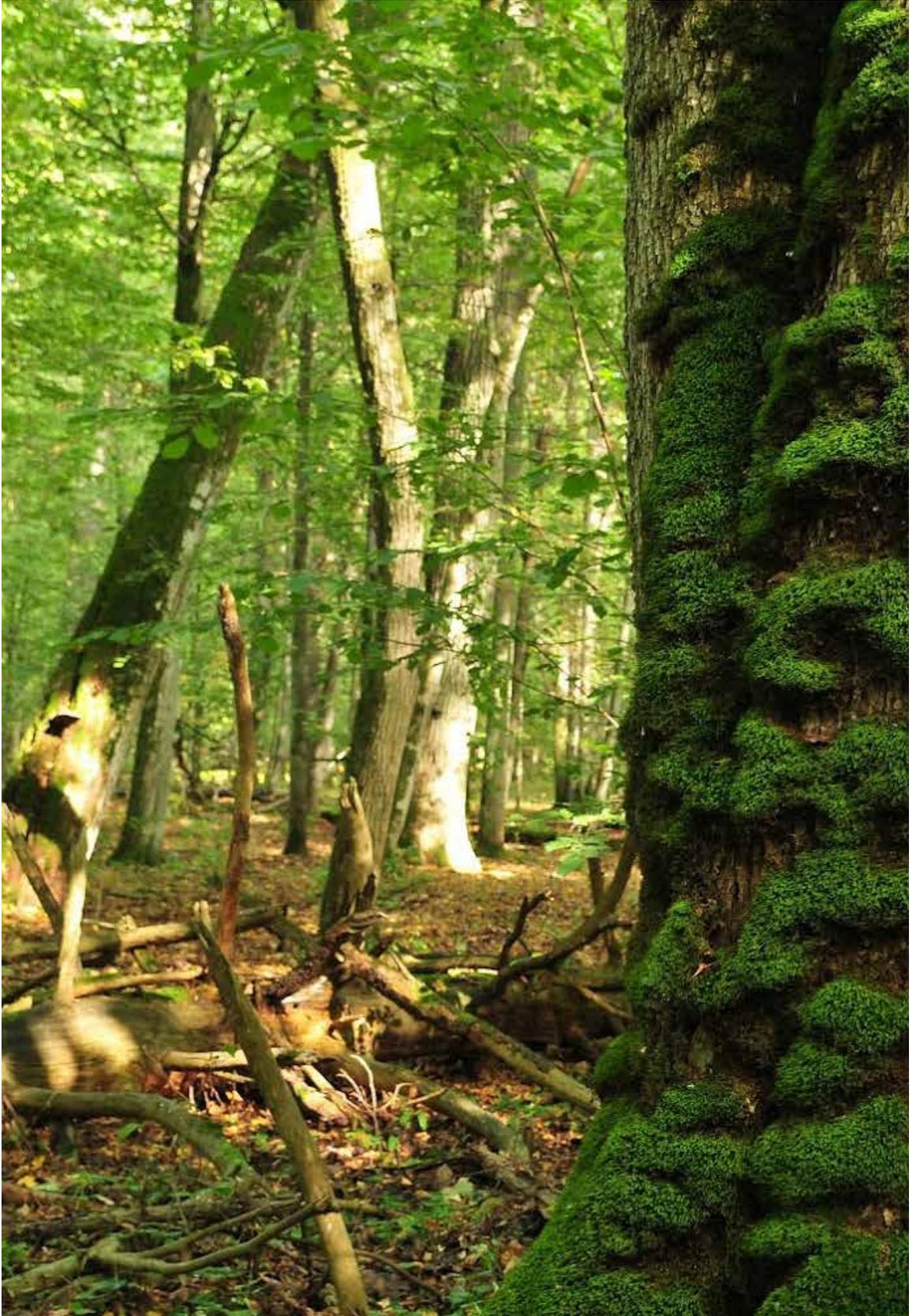
A manual for Tree Assessors

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Introduction

IN THIS MANUAL YOU WILL LEARN:

- How to collect, prepare and present tree assessment results
- How to prepare written material in the form of clear, factual and succinct reports
- How to use digital tools to collect and manage tree data.

Tree inspection does not have to comprise the preparation of documentation, it may be carried out in an oral form only or it may be used to make decisions in connection with the work carried out on a tree. However, if we have in mind basic or advanced tree diagnostics, documentation is normally drawn up in numerous formats. Therefore the skill of presenting inspection results, including the drawing up of a report is one of the key competences of tree assessors. It is not possible to prepare inspection results without “input” such as observations, assessments of particular aspects of a tree, measurement results or photographs. Therefore, the

preparation of documentation begins not at the time of writing it, but as early as at the time of planning inspection, including the identification of expectations of the commissioning entity, the objective of the inspection or the ways of using its results.

In this manual the most important information helpful to persons who learn how to inspect trees has been collected. We hope that it will also help those already engaged in to arrange the process of data collecting, reporting and making it available. Tree inspection documentation is a message through which a tree assessor communicates his/her assessments to others.

The process that leads to the development of documentation is shown in Figure 1.

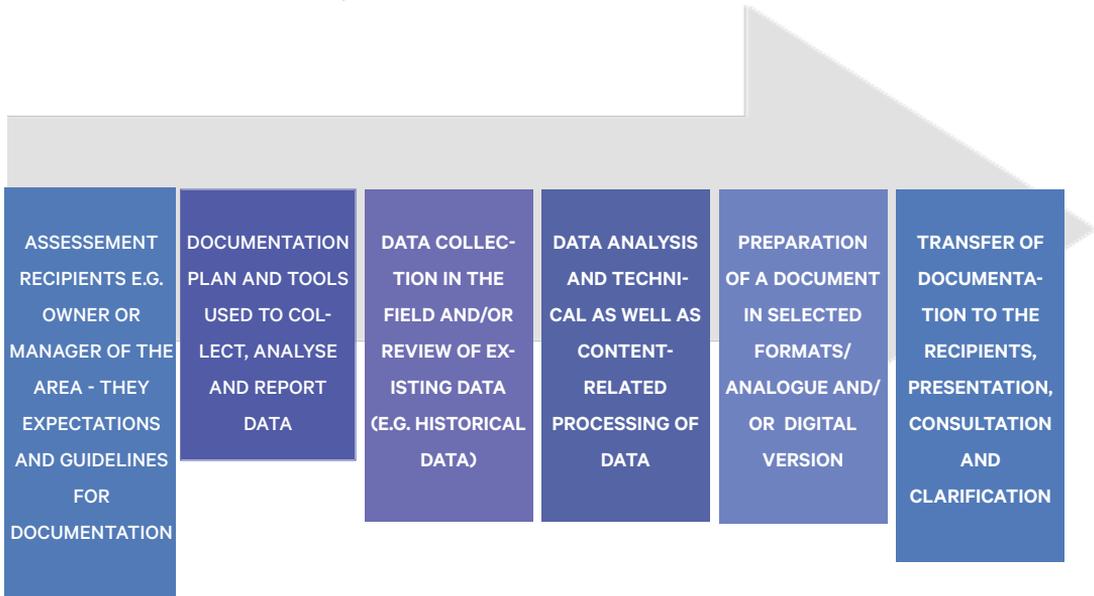
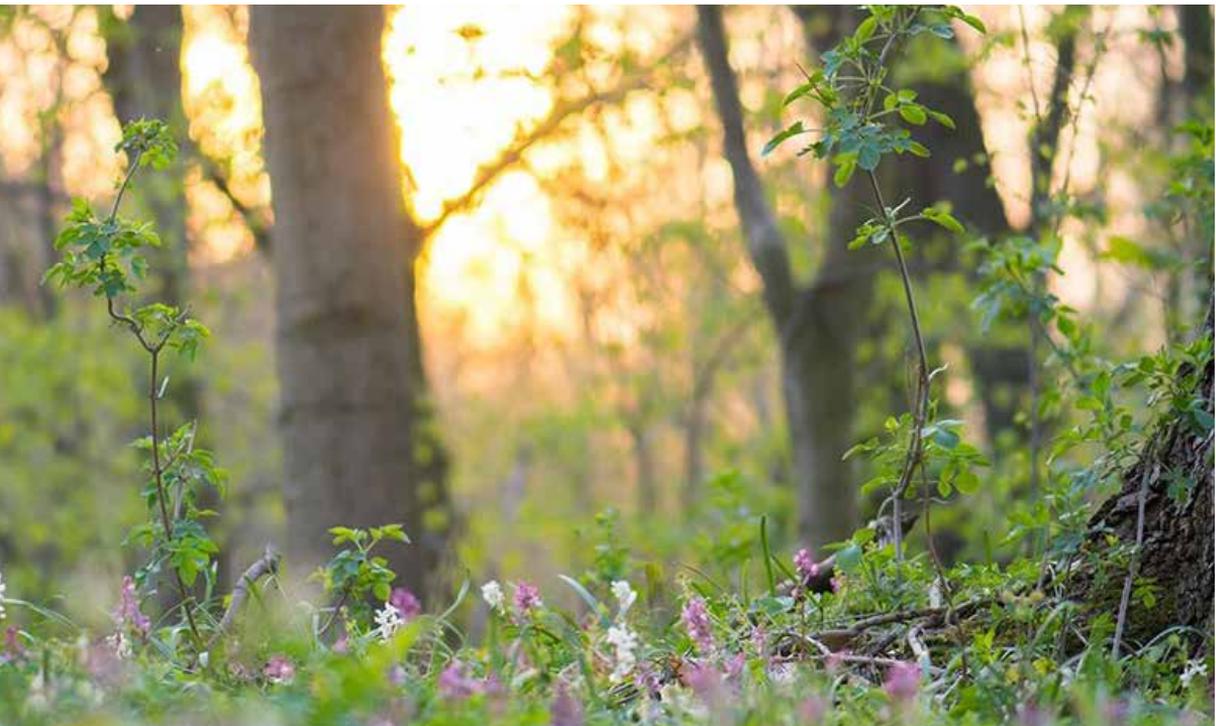


Fig. 1. Documentation preparation process.
(Source: own work)



I.

Documentation recipients and their expectations and guidelines

The starting point for the process of preparing tree assessment documentation is its recipient – often it is their expectations (expressed as specific guidelines laid down in the tender terms of reference/ specific tree assessment forms/ applications for tree assessment, or communicated orally) which are to be met in the form of the obligatory set of data collected in the field and which set the inspection report framework. Then, a tree assessor may adhere to these guidelines, suggest his own solution or

make a compromise between these two options. It must be borne in mind that the inspection process may precede the collection of data on a tree or trees, but it may also supplement the existing tree management system, e.g. tree inspection in a new area to be included into the system or a subsequent assessment of trees already entered in the system, e.g. at a time of another tree assessment in a given area. In the latter case a tree assessor usually follows the already existing rules.



TIP 1

While embarking on tree assessment, always determine its result and define, as far as possible, the tools, content and formats of the assessments to be provided.

Exemplary questions that may help to establish guidelines for documentation:

- is the format of inspection results determined, if so – which one is it?
- is the tool for data collection and/or presentation (e.g. the existing application) specified, if so – which one is it? Is it available for all? Do you know it?
- what is a minimum set of assesment characteristics/criteria/scales? Is it possible to expand/reduce this set?



II.

Documentation plan and tools/ equipment for collecting data, making analyses and reporting

Prior to starting the work and going to the field, it is worthwhile to devote some time to decide how the collection process will look, what the documentation will contain and to prepare the appropriate tools and check their state of repair. When planning documentation, it is advisable to foresee and even to prepare a preliminary version of the report, e.g. a table containing a set of columns to input data, a document with a table of contents. The use of applications or software for inspection very often enforces

us to enter data. Paper is “more patient”. But not writing down an essential characteristic or measurement result may make you go back to the field which entails quite high costs.

Having the idea of the final report layout has an additional advantage: we indirectly plan time for data processing.

As regards the paper form, tree assessment may be provided in a filled-in assessment form (rather in a basic assessment- inspection) or in the extensive report (specialist diagnostics).

TIP 2

When planning time for preparing documentation, add 10-15% for making corrections, editing, printing-out the document or adding unforeseeable supplements.



Tab. 1. Contents of tree assessment documentation

BASIC ASSESSMENT - INSPECTION	ADVANCED ASSESSMENT
A filled-in assessment form (a frequently used)	Written report (normally)
Existing digital applications	Multi-page documentation
Summary tables	Extensive photographic documentation
Simplified photographic documentation	Results of specialist assessments with a description
	Additional descriptions of the inspection methodology, the equipment used, clarification of notions.
	Navigating in the report (e.g. table of contents)

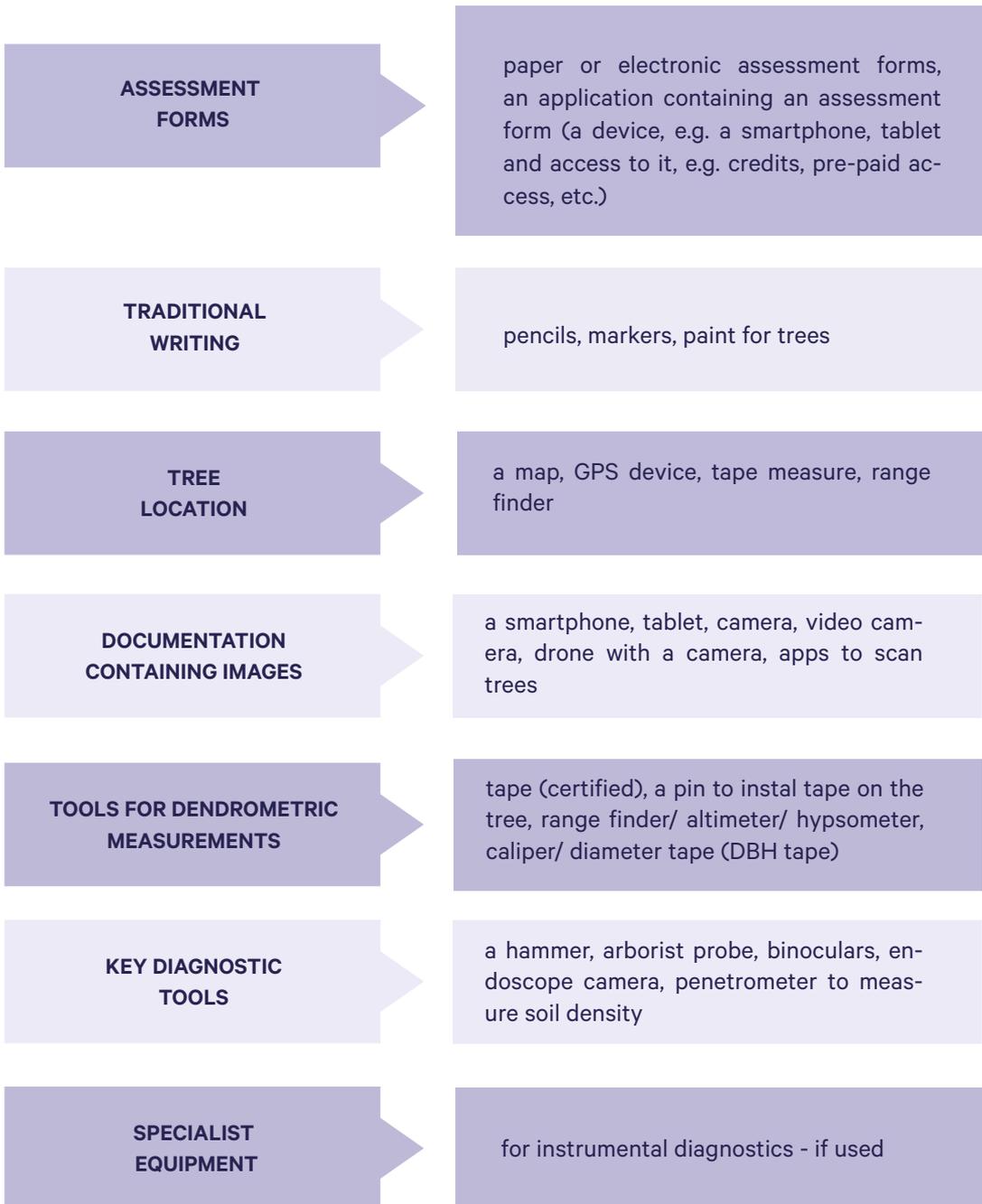
(Source: own work)

The assessment report should be transparent, legible and easy to use by the contracting entity and other users.

Examples of elements to be found in this report:

- The front page: who, for whom, what assessed (name, location), inspection date.
- Table of contents: interactive in electronic documents, including navigation on pages.
- Introduction: the basis for inspection, details, scope, information on the contractor and the contracting entity, information on the inspection author, contact particulars.
- Description of assessment methodology, the tools and specialist equipment used, possibly clarification of the notions used in the document or sources of the information used in the inspection.
- Assessment results: arranged according to an unambiguous key. In the case of specialist diagnostics, they have to be additionally described/ explained.
- Recommendations: for measures aimed at the tree and/or its surroundings and for control.

A set of tools and equipment for work in the field may include many elements (compare figure 2).



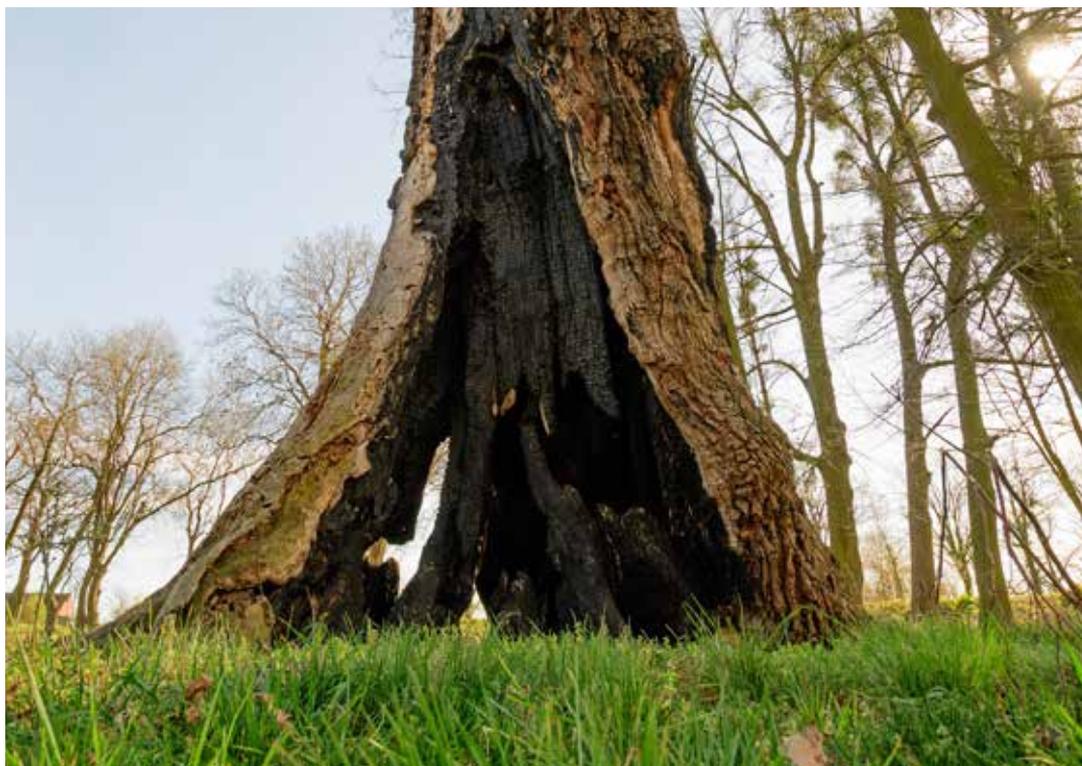
*Fig. 2. Tools used for work in the field during tree assessment
(Source: own work)*

The checklist should also comprise spare tools in case of a loss or damage of the basic ones, spare batteries/ rechargeable batteries or power bank, chargers, spare memory cards. Other devices may also be useful such as a torchlight (also a headlamp), a ladder or a tarp which can be used to put tools on it or to cover these tools with it in the event of sudden rain.

You must not forget about key health and safety at work measures as well as information visible in the surroundings about the work of an inspector/ diagnostician (e.g. a safety jacket/ clothing with reflectors, especially while working by roads). In the case of older trees in stands it may be necessary to wear a protective helmet, goggles and gloves as well as always important shoes and clothes adapted to weather conditions.

TIP 3

Photographic documentation from tree assessment very often does not only comprise trees but also persons carrying out work. It is worth remembering that their appearance should show their professionalism and compliance with the rules of health and safety at work as well as respect for the object of the assessment and the surroundings.



III.

Collection of data in the field and/or review of existing data (e.g. historical data)

Tree assessors normally collect data for the assessment in the field and to this end, though it may sound banal, they must “meet” a tree where it grows. They must get to the object of the assessment, identify it in the field, obtain access to it, and then include identification data in the assessment report in a way comprehensible to the recipient of the inspection and its

users. Practitioners know that instructions and descriptions of tree locations in the field vary greatly. Sometimes they are misleading and it may be difficult to decide “whether the tree I am standing in front of should be assessed and how”. Some of the trees might be identified with arbotags bearing the number and listed earlier or even marked on available maps, but

TIP 4

While identifying the object of the inspection, try to specify earlier the exact location of the tree(s), the species or specific characteristics (if known). Prepare a document and tools you will use in the field to locate the tree.

The numbering and marking on maps may be erroneous. If possible, look at the terrain on online maps, e.g. ortophotomaps, use Google StreetView material or other accessible sources. While locating trees in the field, check the information received against the reality. If you have any doubts, please contact the contracting entity, area manager or any other person that can help you to identify the object of the assessment.

the task may also involve the tree identified as “*the lime opposite building 1-3 in the courtyard close to the dustbin, second from the left*”.

Typical traditional documents for locating trees subject to inspection are as follows: extracts from the inventory, maps, inspections carried out earlier and reports from them. In the past they were available in a printed version only, currently they are increasingly often digital sources, taken to the field on a portable device or accessible remotely. The development of digital, online tools and those for making an inventory of trees on maps available remotely or in special apps definitely makes it easier to access the trees already inventoried.

After getting to the tree(s), you can collect data to be used for inspection. It should already be planned, what data to collect in the field and how to collect it, but it may turn out on site that there is additional information valuable for the assessment. For instance residents will come to talk about the history of the tree, willing to give you pictures showing windy days or the moment when the branch fell from the tree. You may learn how to talk to such persons in a chapter on communication in a series of Tree Assessor manuals. It is advisable to be prepared for that: to have a place where to write such information or a business card with the address to which photos/ further information can be sent. If you decide to use them in the documentation, please describe their source (but without personal particulars – due to GDPR¹ [General Data Protection Regulation]).

The documentation should be reliable, accurate and legible. The same should be required from its “input”.

Below you will find several helpful comments.

APPLY UNIQUE TREE MARKINGS

If there are no arbotags, use your own numbers to be pinned to trees or other unique markings (no paint). **Make use of them at the time of gathering photographic documentation and describing it.**

MEASUREMENTS

While collecting data, do it according to the standards (if they are available), write down deviations from the standard, take notes to help you refresh your memory. Write down measurements immediately after taking them. Memory is fallible.

DOCUMENTATION BY IMAGES

Try to complete the photographs of the tree under assessment, avoid putting photos of other trees/objects between them (if you want to make photo of other object, separate it by an empty photo). Repeat photos of important characteristics. If the tree under assessment is in a group of other trees, try to show it in the centre of the picture (it is advisable to use a pointer or a characteristic object to mark it the assessed tree). The shot of the whole tree should be taken from a distance to avoid rescaling/ distorting the image.

The documentation containing images usually includes a minimum of several or a dozen or so shots focusing on the identification features of the tree and signs of weakening its condition and stability (cf. *Guidelines for Tree Inspection in Tree Assessor manuals*). Often tree colonization as well as the surroundings and their influence on the tree are shown.

¹ The General Data Protection Regulation (EU) 2016/679 (GDPR) is a regulation in EU law on data protection and privacy in the European Union (EU) and the European Economic Area (EEA). It also addresses the transfer of personal data outside the EU and EEA areas. The GDPR's primary aim is to give individuals control over their personal data and to simplify the regulatory environment for international business by unifying the regulation within the EU. https://en.wikipedia.org/wiki/General_Data_Protection_Regulation

Tab. 2. Typical content of photographic documentation from tree assessment.

(Source: own work)

TYPICAL CONTENT OF PHOTOGRAPHIC DOCUMENTATION FROM TREE ASSESSMENT

- a view of the whole tree (shots from different sides)
- habitat (soil and water conditions, constraints on roots)
- surroundings (including objects that increase a risk of a fall of a tree / its parts, or those that influence the condition of a tree)
- the base of the trunk/ buttresses/ root system (e.g. roots visible above ground, soil cracks, girdling roots)
- the trunk/ main forks unions/ crown base
- the crown, important forks in the crown
- shoots, foliage, buds, flowers, fruits
- symptoms of tree weakening or diseases, e.g. exudates, tree decay, cavities,
- problematic spots, e.g. included bark, large deadwood/ hanging branches, detached bark, damage/ breaks/ cracks,
- organisms essential for the tree condition assessment, e.g. fungal fruiting bodies/ ryzomorphs, mistletoe outbreaks, insects exit/ feeding hollows
- protected animals – particular animals, traces of their presence (e.g. excreta) and shelter (including the potential ones, e.g. hollows)
- other features important for the assessment (e.g. protection measures in the crown-cabling/ bracing, extraneous bodies grown into the trunk)
- documentation from examination using instruments (e.g. distribution of sensors)

While recording measurement results, describing the tree or taking photos of the tree, care should be taken to ensure their clarity. If a measurement

is repeated, the wrong one should be crossed out, deleted or marked in other unambiguous manner.

TIP 5

One can support own photographic documentation by a short video showing the picture of the tree and its surroundings as well as the most important characteristics described through the assessor's voice. It is advisable to follow the development of remote technology, 3D or scanning (*described in the chapter on Remote Instrumental Tree Assessment in Instrumental Tree Assessment manual in Tree Assessor serie*) and implement them into the assessment process.



IV.

Data analysis as well as technical and content-related processing of data

Data, assessments and photos must usually be additionally processed prior to the handover of the inspection to the recipient of documentation. For persons who make assessments in special applications it is an easier task – data are usually ready, whereas the assessor’s job is to look through them and possibly to supplement them with final conclusions or recommendations. When specialist diagnostics or an inspection are performed without an electronic app, measurements, assessment results and photographic documentation must be entered in the editable report form.

The plan of documentation described under chapter 2 definitely facilitates the preparation of the report. Many tree assessors develop their own unique template of the report and use it in subsequent assessments.

A typical way of entering data from the field in the editable file is putting them manually into the template prepared earlier. In the case of many trees you may consider preparing the template in Word, in an Excel data file, and the mail merge function may be used – it enables the downloading of data from Excel to the appropriate site in Word. The technique has numerous advantages, dictionaries can be defined (e.g. assessment scales), empty fields are visible in an Excel file and it is easier to analyse data for many trees. The document is uniform and standardized. The drawback is a difficulty in describing untypical trees that do not fit into the established patterns, and additional work (too big in the case of a small number of trees to be assessed). Obviously, the recipient may receive assessments in numerous formats and it is advisable to decide on it earlier.

Photographs/ video should be described with the name of the object under assessment and contain information on the characteristic/ content shown in the picture. If they are annexed to the assessment document as separate files, it is worthwhile to show in the title the time at which they were taken (this information is not always contained in file properties). In the case of transfer of pictures taken using a multi-function device (e.g. a smartphone), it is advisable to look through data in file properties, to limit them to those necessary. While drafting documentation containing images, a location function may be used.

The inspection report should contain photographs with their description, preferably they should be numbered consecutively. They may be shown in the document text to illustrate a specific part of the description or collectively in a separate chapter or in an annex. When inserting pictures into the document, it is advisable to compress them, however maintaining the quality (e.g. 150-200 dpi). Text editors usually

help us to select the compression suitable to the purpose of the documentation. Compression and initial preparation of pictures can also be done beforehand in a graphic program, harmonizing, among other things, the size of the images according to the file format adopted earlier. (It is a good practice to do this on a copy, keeping the originals unchanged).

The report should be legible, clearly structured (e.g. separate headings/ chapters, page numbers, etc.), useful to the recipient (e.g. conclusions and recommendations are written on a separate page).

Entries in the documentation should always be checked, both in terms of content/ technical correctness and language. The role of an editor or proofreader should be assumed by someone other than the person who has prepared the report, as it would be easier for him/her to see errors or inaccuracies. If there is no such person, the author should do the proofreading after some time from the completion of the work (e.g. a day later).

TIP 6

It is advisable to supplement photographs showing tree characteristics by drawings or markings that help us to observe a particular feature or to define it more specifically. Of assistance may be even simple arrows, numbers, circles, etc. available in editorial programmes, e.g. MS Word (Insert Shapes) as well as in (even simple) graphic programs. For instance straight lines may be used to show tree inclination, arrows to indicate the tree characteristic, a fungal fruiting bodies, a circle to indicate the mistletoe outbreak, a hollow or nest.

V.

Preparation of a document in selected formats/analogue and/or digital version

Complete reports are usually drafted in a digital form – in editable formats (e.g. MS Word, MS Excel or their counterparts/ open source) and non-editable ones (e.g. pdf). They are transferred to the recipients on media (e.g. a pendrive, CD/ DVD) or sent electronically. In this case care should be taken to give unique names to files and describe media to facilitate archiving. Unique printed inscriptions may be prepared for CDs/ DVDs (again the template is useful) to be stuck to discs. As regards such media as a pendrive or memory cards, a ring with the description can be attached to them (if you do not have anything better, you may use for this purpose a key ring with the description of files stuck on it).

Many recipients also order traditional documentation in the form of a printout, sometimes

defining in great detail the formats, the way the sheets should be clipped together or the method of printing. The cost of such a printout and the time needed to prepare it can be considerable and it should be included in the price of the task and the schedule.

As a rule, the documentation should be marked with the company name/ personal name of the contractor and signed by the author. It is a good practice to make a scan of such signed paper documentation and to attach it to digital files. Scans usually do not have unique names, so the file name automatically assigned by the scanner should be changed according to the name of the annotated master files. When we prepare electronic files only, an electronic signature or facsimile may be put instead of a handwritten signature.

TIP 7

File names should be unambiguous and should contain the name of the object inspected, the contracting party, contractor and the date of inspection as well as markings of the content.

An example of the file name: *TownX_TreeY_Site Z_Tree AsectorXY_Inspection date.*

An example of the name of the scan with a signature: *TownX_TreeY_Site Z_Tree AsectorXY_Inspection date_scan-signed).*



VI.

Transfer of documentation to the recipient, presentation, consultation and clarification

Usually the tree assessment ends in sending the documentation in the selected form according to the agreed conditions of its transfer. It is worth remembering to check it, prepare an appropriate number of copies of printouts or media. Sending by post or courier is usually a safe, inexpensive and accepted solution, but it is vital to remember some rather obvious but important things, such as a covering letter that redirects the documentation to the final addressee, e.g. the officer in charge of the particular area, or secure packaging of the media and printouts. When sending the documentation by e-mail, it is a good idea to ask for an acknowledgement of receipt and to keep it together with a copy of the dispatch in the folder containing the tree assessment documentation.

Even if this is not provided for in the contract, it is advisable to offer help/clarification or possibly a supplement to the documentation if any doubts arise, e.g. a personal visit to the assessed tree or remote contact. In the case of larger projects or particularly valuable trees, the assessment may end in the presentation of the results to the recipient. Then there is an opportunity to give additional clarification or information.

The documentation recipient may need consultation right after receiving the documentation or after some time, e.g. when he/she uses it to commission work on the tree. Sometimes tree owners return to the tree assessment documentation after a long time, so it is a good idea to clearly archive your own version of the documentation. You can refer to it quickly, if necessary, even after many months.

It will also be useful if the tree is reassessed or if other work is carried out for the same recipient.



VII.

Data archiving and storage

The completed documentation – both raw data and analyses and reports – should be stored for at least the warranty period laid down in the contract or order, or in conformity with the applicable law¹. Another guideline for the period of documentation storage may be the provisions of tax law: the inspection report is a proof of the service provision, so if the service was paid for, it is worthwhile to keep the documentation to demonstrate the work to the tax authorities in the event of an audit.

If there is no such provision in the contract or legal regulations, it is advisable to adopt our own contractual minimum period for documentation storage. Trees are long-lived and one has to reckon with the possibility of referring to the inspection results even after several years or decades. The current possibilities of archiving documents make it possible to store them in a digital form for a long time without costs or loss of quality, so it is advisable to assume a long period of their storage. Obviously, it is always worth making a copy of the archive.

1 For example, in Poland, documentation on crown reduction related to the restoration of the tree statics should be kept in accordance with the Nature Conservation Act for at least 5 years after the end of the year in which the treatment was carried out. According to art. 87a paragraph 2 of the Nature Conservation Act, it is not permitted to remove more than 30% of the boughs of the crown, which has developed throughout the whole period of the tree growth. However, the crown may be reduced more, if cuts are aimed, inter alia, at specialist treatment to restore the tree statics. The treatment, referred to under paragraph 2.3, is carried out based on the documentation, including photographic documentation, that shows the necessity to perform such treatment. The documentation is stored for the period of 5 years from the end of the year in which the treatment was carried out. <http://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20040920880>

If a large number of jobs are carried out, it may be burdensome and costly to store the printed documents, so where there are no other guidelines, store them for the minimum obligatory period (if any) or 5 years and add on one year to that.

TIP 8

Documentation archiving and storage involves additional effort and work, so add it to the schedule and include in the pricing.

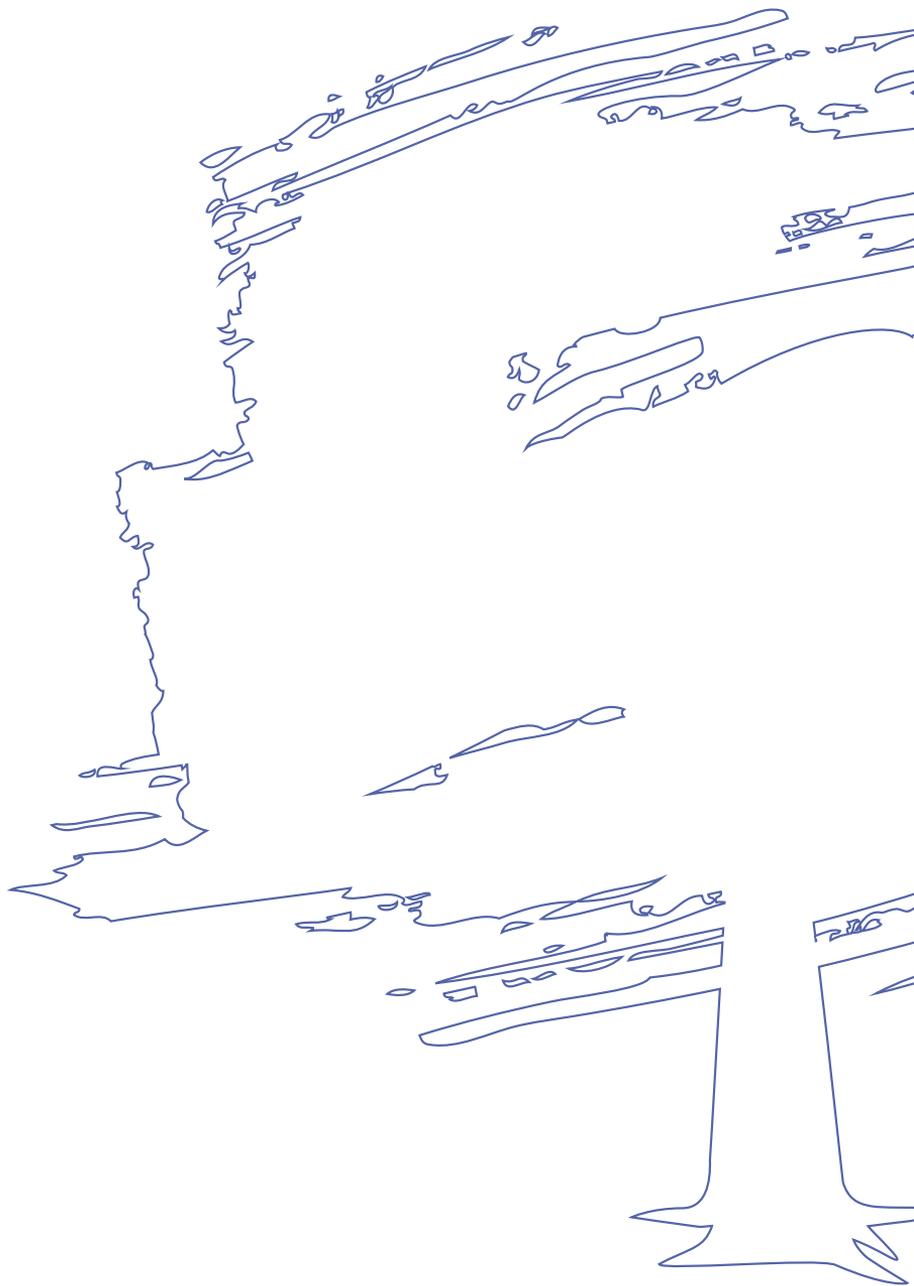






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