



Economic Valuation methods and their use in valuing Veteran trees

Compiled by Johan Östberg, Svenska Trädförening (July, 2019)

Economic valuation methods are used around the world to give an economic value to trees. These valuations are used for example, to get trees on the political agenda, for legislative measures if a tree is damaged, protecting trees during construction and estimating the replacement cost of the trees in a particular area.

Many regions and countries in Europe have produced their own economic valuation model e.g. CAVAT in the UK, VAT03 in Denmark, Koch's method in Germany and Norma Grenada in Spain, and the same trend can be seen outside of Europe such as with CTLA in the USA and the *Revised Burnley Method* in Australia. The methods primarily focus on urban or peri-urban trees however.

All methods will give larger trees (based on trunk size or crown volume), a higher economic value. At the same time, in the majority of these methods, trees without wounds/damage or loss of vitality will receive a higher economic value than trees with reduced vitality or with wounds/damage. Some methods e.g. VAT03, Kochs method and CAVAT will also reduce a trees' economic value with increased age, much due to an expectancy of a shorter life.

Below is a table (Table 1) that highlights the pros and cons of eleven methods for their use on veteran trees. Veteran trees have, in this comparison, been regarded as large, old trees, often with decay, wounds and a poorer condition.

According to table 1 there are only two methods that have been rated as having a high overall usefulness for veteran trees. The first is the Standard Tree Evaluation Method (STEM). This economic valuation increases with age and it is also possible to increase the value based on special factors. The second one is the Methodology for Valuation of Woody Plants Growing Outside of the Forest from Nature Conservation Agency of the Czech Republic (AOPK CZ). The economic valuation reduces in the case of low vitality and wounds/damage but increases by considering the special features with enhanced biological potential (based on Specialist Survey Method, Fay 1997). The rating of the various methods' overall usefulness for veteran trees should, however, only be seen as an indicator, which has been assessed based on how the method will work on old trees with a lot of damage. It is also of crucial importance to keep in mind that a high *Overall usefulness* is **not the same as a high economic value**.

There are several reasons why so few of the economic valuation methods have a high or medium overall usefulness for the economic valuation of veteran trees. Some methods have included the life expectancy to make the models more accepted in legal courts, where shorter life expectancy of other types of property will reduce the economic value. All methods, except Helliwell, reduces the economic value due to wounds/damage, which is likely related to tree nursery pricing, where nurseries will reduce the price of trees if they are damaged. This might also be related to the fact that legal courts reduce the economic value of property when it is damaged. Even though Helliwell does not explicitly value wounds/damage these factors are still taken into consideration when assessing life expectancy. There are also some methods that explicitly state that it is not suitable for trees with high biological or cultural values, e.g. Alnarpsmodellen 2.2. and VAT03.



Co-funded by the
Erasmus+ Programme
of the European Union

Table 1. Valuation methods and their use in relation to veteran trees.

Method	Size	Age	Vitality	Wounds/ Damage	Special factors (e.g. Cultural, biological or social value=	Overall usefulness for Veteran trees
Alnarpsmodell 2.2	Increased value (trunk size)	No effect	Reduced value	Reduced value	No	Medium
AOPK CZ (Methodology for Valuation of Woody Plants Growing Outside of the Forest).	Increased value (trunk size)	No effect	Reduced value	Reduced value	Yes	High
CAVAT	Increased value (trunk size)	Short life expectancy – reduced value	Reduced value	Reduced value	Yes	Low
CTLA	Increased value (trunk size)	No effect	Reduced value	Reduced value	No	Medium
Helliwell	Increased value (trunk size)	Short life expectancy – reduced value	-	-	Yes	Medium
Koch method	Increased value (trunk size)	Short life expectancy – reduced value	Reduced value	Reduced value	No	Low
Norma Granada	Increased value (trunk size)	Short life expectancy – reduced value	Reduced value	Reduced value	Yes	Low
Revised Burnley Method	Increased value (volume size)	Short life expectancy – reduced value	Reduced value	Reduced value	No	Low
Stritzkes	Increased value (trunk size)	No effect	Reduced value	Reduced value	No	Medium
STEM	Increased value	No effect	Reduced value	Reduced value	Yes	High
VAT03	Increased value (trunk size)	Old trees will get a reduced value	Reduced value	Reduced value	No	Low

References

AOPK CZ. Kolařík J, Romanský M, Poulík J, Szórádová A, Úradníček, Krejčířík P, Smýkal F, Vojáčková B, Mikulášek J, Reš B. 2013. Oceňování dřevin rostoucích mimo les včetně výpočtu kompenzačních opatření za kácené nebo poškozené dřeviny. Praha: Agentura ochrany přírody a krajiny ČR. 113 pp. ISBN 978-80-87457-82-5. Access via:

<http://www.ochranaprirody.cz/res/archive/385/062300.pdf?seek=1520256699>

Burnley. Moore, G.M. 1991. Amenity tree evaluation: A revised method, pp 166–171. In *The Scientific Management of Plants in the Urban Environment*. Access via:

<http://www.treeworld.info/attachments/f9/2280d1188383239-monetary-value-treevaluation-methods-treeval-1-.pdf>

CAVAT. Capital Asset Value for Amenity Trees (CAVAT). The London Tree Officers Association. Access via: http://www.ltoa.org.uk/index.php?option=com_docman&task=cat_view&gid=98&Itemid=140

CAVAT. CAVAT (2018). CAVAT (Capital Asset Value for Amenity Trees): valuing amenity trees as public assets. Access via: <https://www.tandfonline.com/doi/full/10.1080/03071375.2018.1454077>

CTLA. Council of Tree & Landscape Appraisers. 2000. *Guide for Plant Appraisal* (9th ed.). International Society of Arboriculture, Champaign, IL.

CTLA. Cullen, S. 2000 *Tree Appraisal: What is the Trunk Formula Method* (9th Edition)? Publicerad i *Arboricultural Consultant*, American Society of Consulting Arborist Sep-okt 1997, 30(5);3ff. Access via: http://www.tree-tech.com/reports/tree_appraisal.xhtm

CTLA. Neilan, C. 2008. *CAVAT Full Method: User's Guide*. Capital Asset Value for Amenity Trees, Revised Edition May 2008. The London Tree Officers Association, LTOA. Access via: <http://www.treeworld.info/attachments/f29/6667d1216380230-soil-subsidence-treescat-rev-may2008.pdf>

Helliwell. Helliwell, D.R. 2008. *Visual Amenity valuation of trees and woodlands*. Arboricultural Association Guidance Note 4.

Helliwell. AA (2019) What is the Helliwell system and how much is a “point”? Access via: <https://www.trees.org.uk/Help-Advice/Public/What-is-the-Helliwell-system-and-how-much-is-a-po>

Koch method. Bulíř, P. 2009. Testing of Koch method applied for evaluation of ornamental trees in the Czech Republic. *Hort. Sci. (Prague)*, 36, 2009 (4): 154–161 Access via: <http://journals.uzpi.cz/publicFiles/12526.pdf>

Koch. Koch, W. 1971. *Verkehrs- und Schadenersatzwerte von Bäume, Sträucher, Hecken und Obstgehölze nach dem Sachwertverfahren*. Bonn, Verlag Pflug und Feder, Heft 69: 1–52. LTOA.

Norma Granada. Asociación Española de Parques y Jardines Públicos. 1999. *Metodo Para Valoración de Árboles y Arbustos Ornamentales*. Norma Granada. Asociación Española de Parques y Jardines Públicos, Madrid, Spain.

STEM. Flook, R. 1996. *A Standard Tree Evaluation Method (STEM)*. Ron Flook, Tahunanui, Nelson, New Zealand. Forestry Commission GB. 2010. *Street tree valuation systems*. Forest Research. Research Summary. Access via:

[http://www.forestry.gov.uk/pdf/SERG_Street_tree_valuation_systems.pdf/\\$FILE/SERG_Street_tree_valuation_systems.pdf](http://www.forestry.gov.uk/pdf/SERG_Street_tree_valuation_systems.pdf/$FILE/SERG_Street_tree_valuation_systems.pdf)

Stritzke. Stritzke, K. 1979. Värdering av träd. Publicerad 1979 i Lustgården, årsskrift för Föreningen för Dendrologi och Parkvård.

VAT03. Randrup, T. 2005. Development of a Danish Model for Plant appraisal. Journal of Arboriculture 31(3): May 2005. International Society of Arboriculture, Champaign, IL. Access via <http://joa.isa-arbor.com/request.asp?JournalID=1&ArticleID=186&Type=2>