

Tree Appraisal Workshop

Verna Mumby

Mumby's Arboriculture Consulting

- Brief history of tree appraisal
- Tools for appraisal and factors in plant appraisal
- Trunk Formula / Cost of Cure / Cost of Repair & other formulae
- Report documentation
- Case studies



•History of Tree Appraisal

1800's to 2000

1800

Europeans began assessing and assigning a monetary value to their trees in the 1800's.

1905

University of Michigan assigned a value of \$5 plus compound interest @ 5% over a 25 year period.

1905-1938

Dr. Stone from U of Massachusetts and Dr. Felt from Barlett Tree Research Laboratories developed the first valuation format.

1947

The formula was improved with assistance of the National Shade Tree Conference and of the National Arborist Association.

1957

Land values removed from the formula. The Location rating was added. The *Basic Value* was established @ \$5/inch² or \$0.78cm².

•History of Tree Appraisal

1800's to 2000

1975

→ *A Guide to the Professional Evaluation of Landscape Trees, Specimen Shrubs and Evergreens* 4th edition was written by the ISA, AAN, ASCA, NAA and National Shade Tree Conference.

1979

→ Council of Tree & Landscape Appraisers (CTLA) was developed & included ISA, AAN, ASCA, NAA, NSTC, ALCA

1979-1992

→ The CTLA wrote 3 more editions. The 8th edition renamed the publication to *Guide for Plant Appraisal* and included a workbook. Basic value was now at \$27/inch² or \$4.19/cm².

1995

→ Field report Guide for Trunk Formula developed.
Cost of Cure Field Report Form developed.

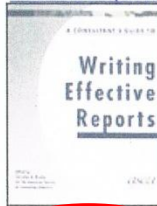
1997-2000

→ CTLA added 2 more associations to their council. Association of Consulting Foresters & American Society of Landscape Architects.
9th edition published in 2000.

[Home](#) > [Subject](#) >

Consulting and Legal Issues

Displaying items 1 - 10 of 10

[A Consultant's Guide to Writing Effective Reports](#)

\$89.95

add to cart

[Cost of Cure: Field Form Reports](#)

\$29.95

add to cart

[Introduction to Arboriculture: ISA's Interactive CD Training Series 10-volume Box Set](#)

Set of 10 CDs offers a total of 49 CEU

[Arboriculture & the Law](#)

\$47.95

add to cart

[Guide for Plant Appraisal Workbook](#)

\$25.00

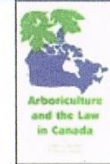
add to cart

[Introduction to Arboriculture: Risk Assessment & Tree Protection CD](#)

Earn 4 CEUs!

\$69.95

add to cart

Sort: [Arboriculture & the Law in Canada](#)

\$49.95

add to cart

[Guide for Plant Appraisal, 9th Edition](#)

\$125.00

add to cart

[Tree Appraisal Field Notes File Folders](#)

\$31.95

Your Cart

Empty

Top Sellers

[Guide for Plant Appraisal, 9th Edition](#)

SKU: P1209

Price: \$125.00

[Introduction to Arboriculture: ISA's Interactive CD Training Series 10-volume Box Set](#)

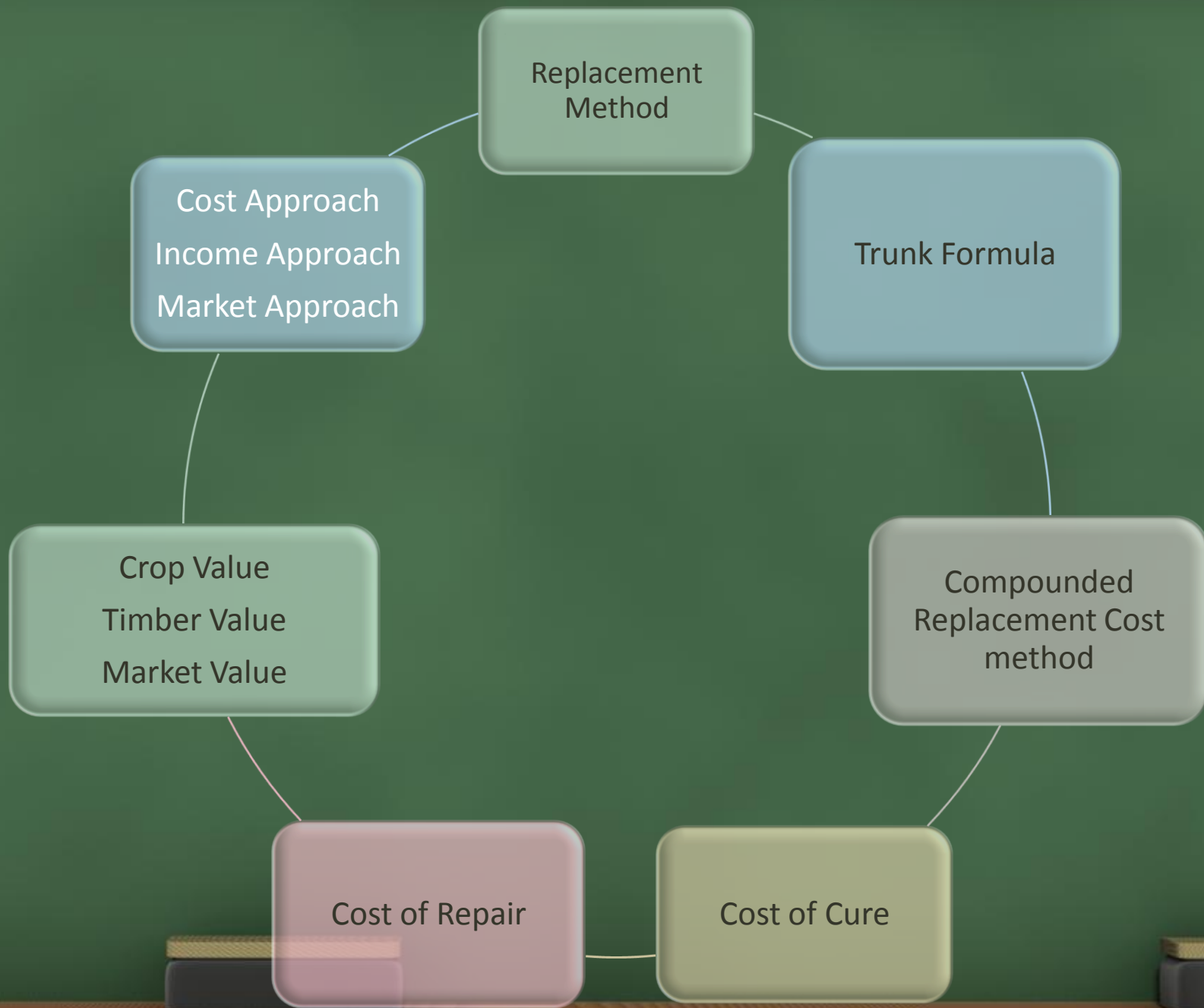
SKU: CD1016

Price: \$325.95

add to cart

[Arboriculture & the Law](#)

SKU: P1215



Conducting an appraisal in the field

GUIDE FOR JUDGING THE CONDITION OF LANDSCAPE TREES

(Refer to Chapter 6 of the *Guide for Plant Appraisal*)

Note: A separate hazard tree evaluation may be required for trees in poor condition.

Factors ¹	TREE NUMBER									
	1	2	3	4	5	6	7	8	9	10
ROOTS										
Root anchorage S.										
Confined relative to top S.										
Collar soundness S.H.										
Mechanical injury S.H.										
Girdling & kinked roots S.H.										
Compaction or water-logged roots H.										
Toxic gases & chemical symptoms H.										
Presence of insects or diseases H.										
TRUNK										
Sound bark & wood, no cavities S.H.										
Upright trunk (well tapered) S.										
Mechanical or fire injury S.H.										
Cracks—frost, etc. S.H.										
Swollen or sunken areas S.H.										
Presence of insects or disease H.										
SCAFFOLD BRANCHES										
Strong attachments S.										
Small diameter than trunk										
Vertical branch distribution										
Free of included bark										
Free of decay and cavities S.H.										
Well-pruned, no severe heading back S.H.										
Well-proportioned—tapered, laterals along branches S.										
Wound closure H.										
Amount of dead wood or fire injury S.H.										
Presence of decay, insects or diseases H.										
SMALLER BRANCHES & TWIGS										
Vigor or current shoots, compared to that of 3-5 previous years H.										
Well-distributed through canopy H.										
Normal appearance of buds—color, shape & size for species										
Presence of weak or dead twigs H.										
Presence of insects or diseases H.										
FOLIAGE AND/OR BUDS										
Normal appearance—size & color H.										
Nutrient deficiencies H.										
Herbicide, chemical or pollutant injury symptoms H.										
Wilted or dead leaves H.										
Presence of insect or diseases H.										
TOTAL POINTS										
CONDITION %										
Condition % = total points divided by 25 possible points.										
ADDITIONAL NOTES										

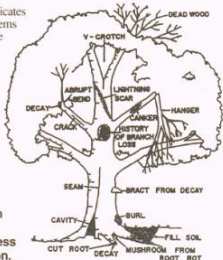
¹ Give one rating for each factor. The items listed under each factor are to be considered in arriving at a rating for that factor.

S. = item is primarily structural

H. = item is primarily health

S.H. = item may involve both structure and health

² A rating of "5" indicates no apparent problems found having done a root-collar inspection and/or climbing the tree to inspect the trunks and major limbs.



Note: Inspection may require climbing to assess canopy condition.

Evidence of previous care (pruning, cabling, bracing, etc.)

© Copyright 1995 by the Council of Tree and Landscape Appraisers and the International Society of Arboriculture. All Rights Reserved.

5 factors to assess on the tree.

Roots / Trunk / Scaffold branches

Smaller branches & twigs / Foliage or buds

Scoring System:

5: no problem

4: no apparent problem

3: minor problems

2: major problems

1: extreme problems

LOCATION CHART

SITE / CONTRIBUTION / PLACEMENT FACTORS TO CONSIDER IN DETERMINING LOCATION VALUES

(Refer to Chapter 7 of the *Guide for Plant Appraisal*)

LOCATION The **Location** rating considers the **Site** of a property, the plant's functional and aesthetic **Contribution** and the **Placement** of the plant in the landscape.

SITE The rating of a **Site** is determined primarily by:

- The quality of development, the general appearance and the intensity of use of the area in which the **Site** is situated.
- The design and quality of structures and landscapes in the area; and the landscape design and quality of the planting and maintenance of the **Site**.
- The type of area (residential, mall, etc.) is not particularly helpful in rating a **Site**.

CONTRIBUTION The functional and aesthetic **Contribution** of a plant influences its value in a landscape. Tree characteristics largely determine **Contribution** and value.

TABLE 7.1. Functional and Aesthetic Contribution Factors Suggested Rating Range 10–100%
(Found in Chapter 7 of the *Guide for Plant Appraisal*).

Functional Attributes ¹	Aesthetic Attributes
<i>Environmental & Engineering</i>	<i>Architectural and Plant Characteristics</i>
Sun radiation & reflection control	Attractive bark, flowers, foliage, fruit, fragrance
Wind control	Accents structures
Drifting snow	Screens undesirable views
Safety barrier	Frames view
Light and glare shield	Defines space
Privacy	Creates vistas
Erosion control	Attracts wildlife
Dirt and dust absorption	
Traffic control	<i>Other Considerations</i>
Noise attenuation	Historic, rare or unusual specimen
Air purification	Unusual site situation
Transpiration cooling	

¹Listed in suggested order of importance. Attributes grouped together are similar in importance.

PLACEMENT The position of a tree in relation to how effectively it provides its functional and aesthetic attributes determines the **Placement** rating of the tree. A single specimen tree has greater value than would the same tree as one of many. The placement of a tree can also have an unfavorable as well as a favorable effect on its contribution, such as proximity to overhead wires, street lights, and buildings.

TREE NUMBER

	1	2	3	4	5	6	7	8	9	10
Site %										
Contribution %										
Placement %										
Total Location Avg. %										

EXAMPLE Average the **Site**, **Contribution** and **Placement** ratings to determine the *average* location %. For example, the ratings for a tree screening a local landfill (dump) would be represented the following way:

- **Site** Quality (low), appearance (low), use (low) **Site rating 20%**
- **Contribution** Screens undesirable views (moderate) **Contribution rating 70%**
- **Placement** Tree planted on dump property line (high)
Dust reduction for neighbors (high) **Placement rating 90%**

(**AVERAGE LOCATION PERCENT** = 20% + 70% + 90% = 180 ÷ 3 = 60%)

© Copyright 1995 by the Council of Tree and Landscape Appraisers and the International Society of Arboriculture. All Rights Reserved.

Site rating : Quality, Design, Appearance & Intensity

Contribution rating: Function, Aesthetics and Benefits

Placement rating : is how effective the tree provides the functions & the aesthetic attributes

•Conducting an appraisal in the field

Tools:

- DBH tape
- Clinometer
- Binoculars
- Notebook
- Camera



Identify the tree species. Take a photo. Take a sample.



Measure the diameter @ 1.4 meters from ground level using a diameter tape.



Assess the health of the tree.



Assess the Site / Contribution / Placement factors to determine the Location rating.

•Classroom Work



- Species Rating
- DBH converted to TA and ATA

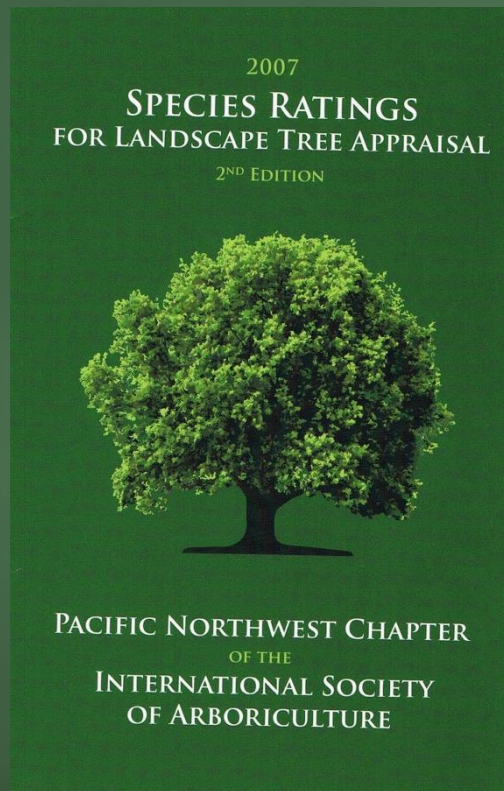


TABLE 4.6. Metric units. **Trunk Areas (TA)*** and **Adjusted Trunk Areas (ATA)**** based on trunk diameter (*d*) at 1.4 m (4.5 ft).

<i>d</i> cm	TA cm ²	<i>d</i> cm	TA cm ²	<i>d</i> cm	TA cm ²	ATA cm ²	<i>d</i> cm	TA cm ²	ATA cm ²
5	20	41	1320	76	4584	4421	112	9847	8490
6	28	42	1385	77	4654	4545	113	10024	8590
7	38	43	1451	78	4726	4670	114	10202	8690
8	50	44	1520	79	4899	4793	115	10382	8790
9	64	45	1590	80	5024	4916	116	10563	8888
10	79	46	1661	81	5150	5038	117	10746	8986
11	95	47	1734	82	5278	5159	118	10930	9083
12	113	48	1809	83	5406	5280	119	11116	9180
13	133	49	1885	84	5539	5400	120	11304	9276
14	154	50	1963	85	5672	5520	121	11493	9371
15	177	51	2042	86	5806	5638	122	11684	9466
16	201	52	2123	87	5942	5756	123	11876	9560
17	227	53	2205	88	6079	5874	124	12070	9653
18	254	54	2289	89	6218	5990	125	12266	9746
19	283	55	2375	90	6359	6107	126	12463	9838
20	314	56	2462	91	6501	6222	127	12661	9929
21	346	57	2550	92	6644	6337	128	12861	10019
22	380	58	2641	93	6789	6451	129	13063	10109
23	415	59	2733	94	6936	6564	130	13267	10199
24	452	60	2826	95	7085	6677	131	13471	10287
25	491	61	2921	96	7235	6789	132	13678	10375
26	531	62	3018	97	7386	6900	133	13886	10462
27	572	63	3116	98	7539	7011	134	14095	10549
28	615	64	3215	99	7694	7121	135	14307	10635
29	660	65	3317	100	7850	7230	136	14519	10720
30	707	66	3419	101	8008	7339	137	14734	10804
31	754	67	3524	102	8167	7447	138	14950	10888
32	804	68	3630	103	8328	7554	139	15167	10971
33	856	69	3737	104	8491	7661	140	15386	11054
34	907	70	3847	105	8655	7767	141	15607	11136
35	962	71	3957	106	8820	7872	142	15829	11217
36	1017	72	4069	107	8987	7977	143	16052	11298
37	1075	73	4183	108	9156	8081	144	16278	11377
38	1134	74	4299	109	9327	8184	145	16505	11457
39	1194	75	4416	110	9499	8287	146	16733	11535
40	1256			111	9672	8388	147	16963	11613

$$*TA = 0.785d^2$$

$$**ATA = -0.835d^2 + 176d - 7020$$



More classroom work...

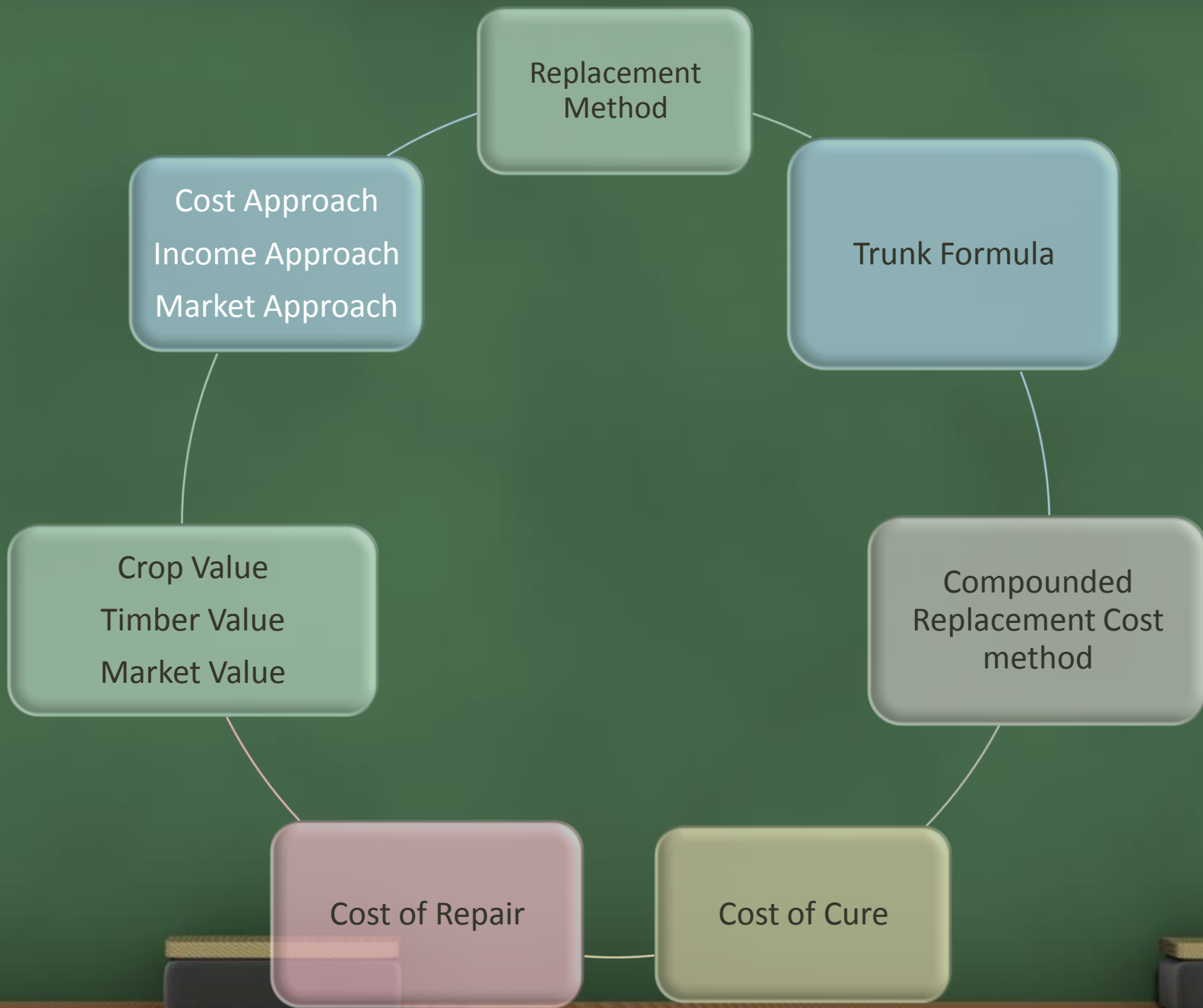


REPLACEMENT PLANT COST

- Wholesale price for the largest transplantable tree of the same species
 - 3 prices
 - 3 local nurseries

INSTALLATION COSTS

- Transporting the tree
- Planting the tree
- Monitoring the tree and maintaining it
- Guarantee
- Profit margin



Replacement Method

Use this method when the tree can be replaced with the same size , in the same location and the same species. Example Green Ash .

Plant Cost (wholesale):
\$308.33

Installation Cost: \$650.00

Species Rating: 80%

Condition: 70%

Location: 75%

Removal Cost: \$250.00

$$(308.33 + 650.00) \times (80\% \times 70\% \times 75\%) + 250.00 = \$652.49$$

Rounded up to \$660.00

Compounded
Replacement Cost
method

Determine the replacement and maintenance costs plus the compounded interest for an estimated number of years until the tree reaches parity.

Cost of Repair

Determine the cost to repair a tree. These costs could include cabling , bracing, pruning, fertilizing, watering , aeration, wound treatment and plant health care.

Trunk Formula

Utilize this method when appraising a tree that is too large to replace.

ISA TRUNK FORMULA METHOD



Date:	May 4/09
Case #:	
Property:	Morris @ Nanoose
Appraiser:	VM
1. Species:	Cornus nuttallii
2. Condition %:	80.0
3. Trunk Circumference:	
Trunk Diameter:	78.0 cm
Use ATA _A Table - Y/N	y
Site %:	50.0
Contribution%:	30.0
Placement %:	50.0
4. Location %:	43.0
5. Species rating%:	60.0
6. Replacement Tree Size (diameter)	6.0 cm
TA _R	28.0 cm ²
7. Replacement Tree Cost:	\$250.00
8. Installation Cost:	\$450.00
9. Installed Tree Cost (#7+#8)	\$700.00
10. Unit Tree Cost:	\$8.85 Per cm ₂
11. Appraised Trunk Area:	
TA _A (use this one for up to 75 cm DBH)	
ATA _A (use this one for < 75 cm DBH)	4670.0 cm ₂
12. Appraised Tree Trunk Increase (TA _{INCR}) =	4642.0 cm ₂
TA _A or ATA _A (#11) - TA _R (#6)	
13. Basic Tree Cost =	\$41,781.70
(TA _{INCR}) (#12) x Unit Tree Cost (#10) + Installed Tree Cost (#9)	
14. Appraised Value =	\$8,623.74
Basic Tree Cost (#13) x Species rating (#5) x Condition (#2) x Location (#4)	
15. If the Appraised Value is \$5000 or more, round it up to the nearest \$100; if it is less, round up to the nearest \$10.	
16. Appraised value = (#14)	\$8,700.00

ISA TRUNK FORMULA METHOD

<p>Date: May 4/06</p> <p>Case #:</p> <p>Property:</p> <p>Appraiser:</p> <p>1. Species: <i>Cornus nuttallii</i></p> <p>2. Condition %: 80.0</p> <p>3. Trunk Circumference: 78.0 cm</p> <p>Trunk Diameter: y</p> <p>Use ATA_R Table - Y/N</p> <p>Site %: 60.0</p> <p>Contribution %: 30.0</p> <p>Placement %: 40.0</p> <p>4. Location %: 43.0</p> <p>5. Species rating %: 60.0</p> <p>6. Replacement Tree Size (diameter): 28.0 cm</p> <p>TA_R</p> <p>7. Replacement Tree Cost: \$250.00</p> <p>8. Installation Cost: \$700.00</p> <p>9. Installed Tree Cost (#7 + #8): \$950.00</p> <p>10. Unit Tree Cost: \$8.85</p> <p>11. Appraised Trunk Area:</p> <p>TA_A (use this one for up to 15 cm DBH)</p> <p>ATA_A (use this one for > 15 cm DBH)</p> <p>12. Appraised Tree Trunk Increase (TA_{AIC}) =</p> <p>$TA_A \times ATA_R$ (#11) - TA_R (#6)</p> <p>13. Basic Tree Cost =</p> <p>(TA_{AIC}) (#12) x Unit Tree Cost (#10) + Installed Tree Cost (#9)</p> <p>14. Appraised Value =</p> <p>Basic Tree Cost (#13) x Species rating (#5) x Condition (#2) x Location (#4)</p> <p>15. If the Appraised Value is \$5000 or more, round it up to the nearest \$100; if it is less, round up to the nearest \$10.</p> <p>16. Appraised value - (#14)</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;">May 4/06</td></tr> <tr><td style="text-align: center;">VM</td></tr> <tr><td style="text-align: center;"><i>Cornus nuttallii</i></td></tr> <tr><td style="text-align: center;">80.0</td></tr> <tr><td style="text-align: center;">78.0</td></tr> <tr><td style="text-align: center;">y</td></tr> <tr><td style="text-align: center;">60.0</td></tr> <tr><td style="text-align: center;">30.0</td></tr> <tr><td style="text-align: center;">40.0</td></tr> <tr><td style="text-align: center;">43.0</td></tr> <tr><td style="text-align: center;">60.0</td></tr> <tr><td style="text-align: center;">28.0</td></tr> <tr><td style="text-align: center;">\$250.00</td></tr> <tr><td style="text-align: center;">\$700.00</td></tr> <tr><td style="text-align: center;">\$950.00</td></tr> <tr><td style="text-align: center;">\$8.85</td></tr> <tr><td style="text-align: center;">cm²</td></tr> <tr><td style="text-align: center;">4670.0</td></tr> <tr><td style="text-align: center;">cm²</td></tr> <tr><td style="text-align: center;">4642.0</td></tr> <tr><td style="text-align: center;">\$41,781.70</td></tr> <tr><td style="text-align: center;">\$8,623.74</td></tr> <tr><td style="text-align: center;">\$8,700.00</td></tr> </table>	May 4/06	VM	<i>Cornus nuttallii</i>	80.0	78.0	y	60.0	30.0	40.0	43.0	60.0	28.0	\$250.00	\$700.00	\$950.00	\$8.85	cm ²	4670.0	cm ²	4642.0	\$41,781.70	\$8,623.74	\$8,700.00	<p><u>Guide for judging plant condition</u></p> <p><u>DBH tape: metric</u></p> <p>Attributes for Site, Contribution and Placement = Location</p> <p><u>PNWISA Species Rating booklet</u></p> <p><u>Table 4.6 Guide for Plant Appraisal</u></p> <p>3 estimates for line 7 & 8</p> <p>$\\$250/28 \text{ cm} = \\8.85 *deciduous</p> <p>$\\$13.18/\text{cm}^2$ conifers $\\$12.55/\text{cm}^2$</p> <p>$4670 - 28 = 4642$</p> <p>$4642 \times \\$8.85 + \\$700 = \\$41,781.70$</p> <p>$\times 60\% \times 80\% \times 43\% = \\$8,623.74$</p>
May 4/06																									
VM																									
<i>Cornus nuttallii</i>																									
80.0																									
78.0																									
y																									
60.0																									
30.0																									
40.0																									
43.0																									
60.0																									
28.0																									
\$250.00																									
\$700.00																									
\$950.00																									
\$8.85																									
cm ²																									
4670.0																									
cm ²																									
4642.0																									
\$41,781.70																									
\$8,623.74																									
\$8,700.00																									

*PNWISA chapter follows these unit tree costs.

Each ISA chapter has their own species rating and some have their own unit tree costs. Verify with your ISA chapter before assessing a value.

Cost of Cure

The treatment necessary to return the property to a reasonable level of its original condition where there has been damage to or loss of trees.

1. Remove debris, stumps and clean the site.
2. Replace the trees and restore the property to its pre-casualty condition.
3. Calculate post -restoration maintenance.



Important points to remember.

- Collect your data correctly.
- Apply the method of appraisal suitable for the situation.
- Be reasonable.



Report formats and case studies.



It takes two things to be a consultant -
Gray Hair and Hemorrhoids.

The *Gray Hair* makes you look distinguished -
The *Hemorrhoids* make you look concerned.