

Pruning Literature Review Bibliography

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1. American National Standards Institute (ANSI). 2001. ANSI A300 Pruning Standard.
2. Appel, D. 1994. Identification and control of oak wilt in Texas urban forests. *J. Arboriculture* 20:250-258.
3. Austad, I. and L. Hauge. 2007. Pollarding in western Norway. in *Proc. European Symp. Tronges (pollards)*. Vendome Agricultural College. Loir-et-Cher. France.
4. Bai, S., W. Chaney, and Y. Qi. 2005. Wound closure in trees affected by paclobutrazol. *J. Arboriculture* 31:273-279.
5. Baker, F. and D. French. 1985. Economic effectiveness of operational therapeutic pruning for control of Dutch elm disease. *J. Arboriculture* 11:247-249.
6. Balandier, P. 1997. A method to evaluate needs and efficiency of formative pruning of fast-growing broad-leaved trees and results of an annual pruning. *Canadian J. Forest Research* 27:809-816.
7. Balder, H., K. Ehlebracht, and E. Mahler. 1997. *Straßenbaume. Planen, Pflanzen, Pflegen, am Beispiel Berlins*. Patzer-Verlag, Berlin, Germany.
8. Ball, J. 1992. Response of the bronze birch borer to pruning wounds on paper birch. *J. Arboriculture* 18:294-297.
9. Barger, J. and W. Cannon. 1987. Response of smaller European bark beetles to pruning wounds on American elm. *J. Arboriculture* 13:102-104.
10. Barry, K., R. Pearce, and C. Mohammed. 2001. Properties of reaction zones associated with decay from pruning wounds in plantation-grown *Eucalyptus nitens*. *Forest Pathology* 30:233-245.
11. Barry, K., M. Hall, and C. Mohammed. 2005. The effect of time and site on incidence and spread of pruning-related decay in plantation-grown *Eucalyptus nitens*. *Canadian J. Forest Research* 35:495-502.
12. Barton, I. 1995 Preliminary results from a sailing pruning trial of *Cupressus* species. *New Zealand Tree Grower* 16: 28-29.
13. Bauch, J., A. L. Shigo, and M. Stark. 1980. Wound effects in the xylem of *Acer* and *Betula* species. *Holzforschung* 34:154-160.
14. Baum, S. and F. Schwarze. 2002. Large-leaved lime (*Tilia platyphyllos*) has a low ability to compartmentalize decay fungi via reaction zone formation. *New Phytologist* 154:481-490.
15. Bory, G. et al. 1996. Physiological consequences of architectural pruning on trees. in *Proc. 2nd. European Congress in Arboriculture. Institut pour le Développement Forestier* Paris, France. 111-119.
16. Brickell, C. and D. Joyce. 1996. *The Royal Horticultural Society Pruning and Training*. Dorling Kindersley.
17. Bridgeman, P. 1976 *Tree Surgery*. David & Charles, London.
18. British Standards Institute. 1989. BS 3998 Recommendations for tree work.
19. Broschat, T. and A. Meerow. 2000. *Ornamental Palm Horticulture*. University of Florida Press, Gainesville, FL.
20. Brown, G. 2004. *The Pruning of Trees, Shrubs and Conifers.*, 2nd ed. Timber Press, Portland, OR.

21. Butin, H. and A. Shigo. 1981. *Radial shakes and "frost cracks" in living oak trees*, Research Paper. U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station, Broomall, PA.
22. Camilli, K., D. Appel, and W. T. Watson. 2007. Studies on pruning cuts and wound dressings for oak wilt control. *Arboriculture & Urban Forestry* 33:132-130.
23. Chandler, W. and R. Cornell. 1952. *Pruning Ornamental Trees, Shrubs and Vines*.
24. Chandrashekara, U. 2007. Effects of pruning on radial growth and biomass increment of trees growing in homegardens of Kerala, India. *Agroforest Systems* 69: 231-237.
25. Churack, P. et al. 1994. Relationship between street tree diameter growth and projected pruning and waste wood management costs. *J. Arboriculture* 20:231-236.
26. Clair-Maczulajtys, D., I. Le Disquet, and G. Bory. 1999. Pruning stress: Changes in the tree physiology and their effects on the tree health. in *Proc. International Symp. on Urban Tree Health*, Acta Horticulturae 496:317-324.
27. Clark, F. B. 1955. Black walnut responds to pruning. *J. Forestry* 53:362-365.
28. Close, D. et al. 2001. Homeowners opinions on the practice and effects of topping trees. *J. Arboriculture* 27:160-165.
29. Coder, K. et al. 1997. Crown pruning effects on roots. in *Proc. 3rd European Arboriculture Congress*.
30. Coombs, D. et al., 2001. *The Complete Book of Pruning*. Cassell Paperbacks, England.
31. Dahle, G. et al., 2006. Decay patterns in silver maple (*Acer saccharinum*) trees converted from round-overs to V-trims. *Arboriculture & Urban Forestry* 32:260-264.
32. Dahle, G. et al. 2006. Branch strength loss implications for silver maple (*Acer saccharinum*) converted from round-over to V-trim. *Arboriculture & Urban Forestry* 32: 148-154.
33. de Montigny, L. and S. Stearns-Smith. 2001. Pruning density and severity in coastal western hemlock: 4-year results. Ministry of Forests Research Program. British Columbia, Canada.
34. Deflorio, G. et al. 2007. The influence of wound location on decay extent in plantation-grown *Eucalyptus globulus* and *Eucalyptus nitens*. *Forest Ecology Management* 242:353-362.
35. Doughty, S. et al. 1989. How wound compounds affect pruning wound closure and decay in young swamp red maple trees. *HortScience* 24:393.
36. Drenou, C. 1999. *La taille des arbres d'ornement (The size of ornamental trees: how to why)*. Institut pour le développement forestier, Paris, France.
37. Drenou, C. 2000. Pruning trees: the problem of forks. *J. Arboriculture* 26:264-269.
38. Dujesiefken, D. 1991. Der Kronenschnitt in der Baumpflege (Crown cutting in arboriculture). *Neue Landschaft* 36:27-31.
39. Dujesiefken, D. ed. 1995. *Wundbehandlung an Bäumen (Wound treatment of trees)*. Bernhard Thalacker Berlag, Braunschweig.
40. Dujesiefken, D. and H. Stobbe. 2002. The Hamburg Tree Pruning System - A framework for pruning of individual trees. *Urban Forestry & Urban Greening* 1:75-82.
41. Dujesiefken, D., S. Ebenritter, and W. Liese. 1989. Wundreaktionen im Holzgewebe bei Birke, Buche und Linde (Wound reactions in the wood of birch, beech and basswood). *Holz als Roh- und Werkstoff* 47:495-500.

42. Dujesiefken, D., T. Kowol, and W. Liese. 1998. Vergleich der Schnittführung bei der Astung von Linde und Roßkastanie (Comparison of the situation of cuts during pruning of linden or horse chestnut). *Allgemeine Forstzeitschrift* 43:331-336.
43. Dujesiefken, D., H. Stobbe, and D. Eckstein. 1998 Langzeitwirkungen von Astungen im Holz von Linde und Roßkastanie (Long-term effects of pruning on the trunk of lime and horsechestnut). *Forstwissenschaftliches Centralblatt - Tharandter Forstliches Jahrbuch* 117:305-315.
44. Dujesiefken, D. et al. 1999. Tree wound reactions of differently treated boreholes. *J. Arboriculture* 25:113-123.
45. Dujesiefken, D. et al. 2005. Arboricultural Practices. in *Urban Forests and Trees* Springer Verlag, Berlin, Germany.
46. Dujesiefken, D. et al. 2005. Response of beech and oaks to wounds made at different times of the the year. *European J. Forest Research* 124:113-117.
47. Duryea, M. et al. 1996. Wind and trees: A survey of homeowners after Hurricane Andrew. *J. Arboriculture* 22:44-49.
48. Ehsen, H. 1987. Pruning of street trees: Cause, objective and execution. *Arboricultural J.* 11:245-263.
49. Eisner, N., E. Gilman, and J. Grabosky. 2002. Branch morphology impacts compartmentalization of pruning wounds. *J. Arboriculture* 28:99-105.
50. Eisner, B. et al. 2002. Branch junction characteristics affect hydraulic segmentation in red maple. *J. Arboriculture* 28:245-251.
51. Ericsson, A. et al. 1985. Effects on growth of simulated and induced shoot pruning by *Tomicus piniperda* as related to carbohydrate and nitrogen dynamics in Scots pine. *J. Applied Ecology* 22:105-124.
52. European Arboricultural Council. 2008. European Tree Pruning Guide. Forest Research Station.
53. Evans, P. and J. Klett. 1984. The effects of dormant pruning treatments on leaf, shoot, and root production from bare-root *Malus sargentii*. *J. Arboriculture* 10:298–302.
54. Evans, P. and J. Klett. 1985. The effects of dormant branch thinning on total leaf, shoot, and root production from bare-root *Prunus cerasifera* ‘Newportii’. *J. Arboriculture* 11:149-51.
55. Fay, N. 2002. Environmental arboriculture, tree ecology and veteran tree management. *Arboricultural J.* 26:213-238.
56. Fay, N. 2004. Survey methods and development of innovative arboricultural techniques in key UK (United Kingdom) veteran tree sites. 64-75.
57. Fazio, J. and E. Krumpe. 1999. Underlying beliefs and attitudes about topping trees. *J. Arboriculture* 25:193-199.
58. Ferrari, F. 2004. Summer pruning. *Acer* 3:53-55.
59. Ferrari, F., A. Pestalozza, and R. Casagrandi. Pruning carefully. *Acer* 3:41-47.
60. Ferrini, F. 2004. Management of monumental trees: Review on the effects on physiological balance and tree biomechanics. in *The trees of history: Protection and exploitation of monumental trees*. Regione Piemonte Univ. di Torino, Torino, Italy.
61. Ferrini, F. 2006. Interventi di potatura e loro effetti sull'equilibrio fisiologico e biomeccanico degli alberi ornamentali. *Sherwood* 3:19-22.

62. Francesco F. 2006. Pollarding and its effects on tree physiology: a look to mature and senescent tree management in Italy. in Colloque européen sur les trognes, Vendôme, France.
63. Ferrini, F. 2004. Training veteran trees. Part 1. *Acer* 4:42-46.
64. Ferrini, F. 2004. Training veteran trees. Part 2. *Acer* 5:50-54.
65. Ferrini, F. 2006. Potatura degli alberi ornamentali: Effetti sull'equilibrio fisiologico e biomeccanico (Pruning ornamental trees: Effects on physiology and biomechanic equilibrium). *Sherwood-Foreste* 120:19-22.
66. Findlay, C. et al. 1997. Root and shoot pruning in root-balled *Acer platanoides* L.: effects of establishment and shoot architecture. *Arboricultural J.* 21:215-229.
67. Forkasiewicz, K. 1998. The design and implementation of a code of practice for low voltage overhead utility pruning of trees. *Arboricultural J.* 21:121-128.
68. Fraedrich, B. and E. Smiley. 1996. Maintenance pruning standard: A simplified view. *Arborist News*.
69. Funk, D. 1979. Stem form response to repeated pruning of young black walnut trees. *Canadian J. Forest Research* 9:114-116.
70. Galvin, M. 2005. Trees and their impact on electric reliability during and following tropical storm Isabel. in *Hurricane Isabel in Perspective*, ed. K. G. Sellner. Chesapeake Research Consortium, Edgewater, MD.
71. Gatti, L. 2003 Precise cutting. *Acer* 3:42-43.
72. Gilman, E. 2002 *Illustrated Guide to Pruning*, 2nd ed. Delmar Learning, Albany, NY.
73. Gilman, E. and J. Grabosky. 2006. Branch union morphology affects decay following pruning. *Arboriculture & Urban Forestry* 32:74-79.
74. Gilman, E. and S. Lilly. 2002. *Best Management Practices Tree Pruning*. International Society of Arboriculture.
75. Gilman, E. et al. 2008. Effects of pruning dose and type on trunk movement in tropical wind storms. *Arboriculture & Urban Forestry* 34:13-19.
76. Gilman, E. and G. Knox. 2005. Pruning type affects decay and structure of crapemyrtle. *J. Arboriculture* 31:38-47.
77. Gilman, E., F. Master, and J. Grabosky. 2008. Pruning affects tree movement in hurricane force winds. *Arboriculture & Urban Forestry* 34:20-28.
78. Goodfellow, J., B. Blumreich, and G. Nowacki. 1987. Tree growth response to line clearance pruning. *J. Arboriculture* 13:196-200.
79. Grabosky, J. and E. Gilman. 2007. Response of two oak species to reduction pruning cuts. *Arboriculture & Urban Forestry* 33:360-366.
80. Grabosky, J., E. Gilman, and C. Harchick. 2007. Use of branch cross-sectional area for predicting pruning dose in young field-grown *Quercus virginiana* 'Cathedral' in Florida, US. *Urban Forestry & Urban Greening* 6:159-167.
81. Green, D., W. Shortle, and A. Shigo. 1981. Compartmentalization of discolored and decayed wood in red maple branch stubs. *Forest Science* 27:519-522.
82. Gregory, G. and J. Allison. 1979. The comparative effectiveness of pruning versus pruning plus injection of trunk and/or limb for therapy for Dutch elm disease in American elms. *J. Arboriculture* 5:1-4.
83. Guggenmoos, S. 2007. Increased risk of electrical service interruption associated with tree branches overhanging conductors. *Utility Arborist Assoc. Quarterly*.

84. Guimond, C., G. Lang, and P. Andrews. 1998. Timing and severity of summer pruning affects flower initiation and shoot regrowth in sweet cherry. *HortScience* 33:647-649.
85. Halliwell, B., J. Turpin, and J. Wright. 1979. *The Complete Handbook of Pruning.*, 2nd ed. Ward Lock, London.
86. Hanley, D. et al. eds. 1995. *Forest pruning and good quality of western North American conifers*. Univ. Washington Inst. Forest Research #77.
87. Harris, R. 1975. Pruning fundamentals. *J. Arboriculture* 1:221-226.
88. Harris, R. 1994. Clarifying certain pruning terminology: thinning, heading, pollarding. *J. Arboriculture* 20:50-54.
89. Hensley, D. 1979. Pruning: why, when and how. *J. Arboriculture* 5:239-240.
90. Herring, H., V. Rudolph, and W. Lemmien. 1958. Wound area as influenced by closeness of pruning. *J. Forestry* 56:219-220.
91. Himelick, E. and D. Ceplecha. 1976. Dutch elm disease eradication by pruning. *J. Arboriculture* 2:81-84.
92. Holewinski, D., J. Orr, and J. Gillon. 1983. Development of improved tree trimming equipment and technique. *J. Arboriculture* 9:137-40.
93. Hoster, R. 1993. *Baumpflege und Baumschutz (Tree Care and Tree Protection)*. Verlag Eugen Ulmer, Stuttgart, Germany.
94. Hudler, G. and S. Jensen-Tracy. 1999. Lac Balsam® as a treatment to hasten wound closure and minimize discoloration and decay. *J. Arboriculture* 28:264-269.
95. Johnson, D. 2007. Pruning. in *Urban and Community Forestry in the Northeast* Springer, New York.
96. Johnstone, R. 1983. Management techniques for utility tree maintenance. *J. Arboriculture* 9:17-20.
97. Johnstone, R. 1988. Economics of utility lateral trimming. *J. Arboriculture* 14:74-77.
98. Kappel, F., M. Bouthillier, and R. Brownlee. 1997. Summer pruning young 'Sweetheart' sweet cherry trees affects yield and tree size. *HortScience* 32:1034-1036.
99. Karlovich, D., J. Groninger, and D. Close. 2000. Tree condition associated with topping in southern Illinois communities.,” *J. Arboriculture* 26:87-91.
100. Kempter, G. 2004. Best Management Practices Utility Pruning of Trees. International Society of Arboriculture.
101. Kerr, G. and R. Harmer. 2001. Production of epicormic shoots on oak (*Quercus robur*): effects of frequency and time of pruning. *Forestry* 74:467-477.
102. Kerr, G. and G. Morgan. 2006. Does formative pruning improve the form of broadleaved trees? *Canadian J. Forest Research* 36:132-141.
103. Kimball, B. et al. 1998. Impacts of live canopy pruning on the chemical constituents of Douglas-fir vascular tissues: Implications for black bear tree selection. *Forest Ecology Management* 109:51-56.
104. Kramer E. and M. Borkowski. 2004. Wood grain patterns at branch junctions: modeling and implications. *Trees- Structure & Function* 18:493-500.
105. Kuhns, M. and D. Reiter. 2007. Knowledge and attitudes about utility pruning and how education can help. *Arboriculture & Urban Forestry* 33:264-274.
106. Langstrom, B. and C. Hellqvist. 1991. Effects of different pruning regimes on growth and sapwood area of Scots pine. *Forest Ecology Management* 44:239-254.

107. Langstrom, B. et al. 1993. Effects of pruning young Scots pines on host vigour and susceptibility to *Leptographium wingfieldii* and *Ophiostoma minus*, two blue-stain fungi associated with *Tomicus piniperda*. *European J. Forest Pathology* 23:400-415.
108. Ledin, R. 1961. Pruning Palms. *American Hort. Magazine*.
109. Leiser, A. et al. 1972. Staking and pruning influence trunk development of young trees. *J. American Society Horticultural Science* 97:498-503.
110. Lev-Yadun, S. and R. Aloni. 1990. Vascular differentiation in branch junctions of trees: circular patterns and functional significance. *Trees- Structure & Function* 4:49-54.
111. Li, M., P. Uehre, and J. Matschke. 2001. Diameter growth and stem form development of young trees, depending on pruning activity. *Schweizerische Zeitschrift fur Forstwesen* 152:389-393.
112. Liese, W. and D. Dujesiefken. 1996. Wound reactions in trees. in *Forest trees and palms. Diseases and control*, ed. S. Raychaudhuri and K. Maramorosch. Oxford and IBH Publishing Co., New Delhi, Calcutta.
113. Liese, W., D. Dujesiefken, and J. Bremer. 1988. Wundreaktionen bei Linde nach Astung in der Baumpflege (Wound reactions of lime trees following pruning during tree care). *Forstwissenschaftliches Centralblatt* 107:184-196.
114. Lippi, P. 1994. Tree pruning: aims and types. Part 2. *Acer* 3:19-21.
115. Lippi, P. 1994. Tree pruning: aims and types. Part 1. *Acer* 2:18-19.
116. Lobis, di V. and M. Tomasi. 2003. La classificazione degli interventi di manutenzione degli alberi (System of classification for tree care). *Sherwood-Foreste* 94: 39-45.
117. Lonsdale, D. 2008. BS 3998 Recommendations for tree work: likely implications of the next edition. *Arboricultural J.* 31:19-31.
118. Lonsdale, D., "A comparison of "target" pruning, versus flush cuts and stub pruning." (AAIS Arboriculture Research Note 116/93/PATH, 1993).
119. Luley, C., S. Sisinni, and A. Pleninger, 2002. The effect of pruning on service requests, branch failures, and priority maintenance in the City of Rochester, New York, U.S. *J. Arboriculture* 28:137-143.
120. Malins, J. 1997. *The Pruner's Handbook. Practical pruning advice for healthy, beautiful plants.*, 2nd ed. David & Charles, Devon, United Kingdom.
121. Margolis, H. et al. 1988. The adjustment of growth, sapwood area, heartwood area, and sapwood saturated permeability of balsam fir after different intensities of pruning. *Canadian J. Forest Research* 18:723-727.
122. Mascelli, M., F. Menchi, and A. Gabellini. 2008. Alberature mature in ambiente urbano: Un case nella citta di Prato (Urban plant stand: A study in Prato Italy). *Sherwood-Foreste* 142:37-41.
123. Mayer-Wegelin, H. 1936. *Astung*. M. & H. Schaper, Hanover, Germany.
124. Mayer-Wegelin, H. 1954. *Das Aufasten der Waldbäume (Pruning forest trees)*, 3rd ed. Schaper-Verlag, Hannover, Germany.
125. McGillivray, L, S. Wiest, and D. Hensley. 1996. A survey of line clearance operations in Kansas US. *J. Arboriculture* 22:281-282.
126. W. E. McQuilkin. 1950. Effects of some growth regulators and dressings on the healing of tree wounds. *J. Forestry* 48:423-28.

127. Mercer, P. and S. Kirk. 1984. Biological treatments for the control of decay in tree wounds: Laboratory tests. *Annals Applied Biology* 104:211-219
128. Mercer, P. and S. Kirk. 1984. Biological treatments for the control of decay in tree wounds: field tests.,” *Annals Applied Biology* 104:221-229.
129. Mercer, P. et al. 1983. Chemical treatments for control of decay in pruning wounds. *Annals Applied Biology* 102:435-453.
130. Miller, R. and W. Sylvester. 1981. An economic evaluation of the pruning cycle. *J. Arboriculture* 7: 109-112.
131. Miller, V. 1959. Crotch influence on strength and breaking point of apple tree branches. *Proc. American Society Horticultural Science* 73:27-32.
132. Millet, J. and A. Bouchard. 2003. Architecture of silver maple and its response to pruning near the power distribution network. *Canadian J. Forest Research* 33:726-739.
133. Moore, J. and D. Maquire. 2005. Natural sway frequencies and damping ratios of trees: influence of crown structure. *Trees - Structure and Function* 19:363-373.
134. Moorman, G. and R. Lease. 1999. Effects of pruning in the management of dogwood and pine branch dieback in the landscape. *J. Arboriculture* 25:274-277.
135. Neely, D. 1970. Healing of wounds on trees. *J. American Society Horticultural Science* 95:536-40.
136. Neely, D. 1979. Tree wounds and wound closure. *J. Arboriculture* 5:135-40.
137. Neely, D. 1988. Closure of branch pruning wounds with conventional and ‘Shigo’ cuts. *J. Arboriculture* 14:261-64.
138. Neely, D. 1988. Wound closure rates on trees. *J. Arboriculture* 14:250-54.
139. Neely, D. 1988. Tree wound closure. *J. Arboriculture* 14:148-52.
140. Neilson, W. and E. Pinkard. 2003. Effects of green pruning on growth of *Pinus radiata*. *Canadian J. Forest Research* 33:2067-2073.
141. Nowak, D. 1990. Street tree pruning and removal needs. *J. Arboriculture* 16:309-315.
142. O'Hara, K. 1991. A biological justification for pruning in coastal Douglas-fir stands. *Western J. Applied Forestry* 6:59-63.
143. O'Hara, K. 2007. Pruning wounds and occlusion: A long-standing conundrum in forestry. *J. Forestry* 105:131-138.
144. Oleksak, B., M. Kmetz-Gonzales and D. Struve. 1997. Terminal bud cluster pruning promotes apical control in transplanted shade tree whips. *J. Arboriculture* 23:147-154.
145. Opgenorth, D., L. Butler, and M. Arciero. 1983. Transmission of *Ceratocystis ulmu* on pruning saws. *J. Arboriculture* 9:196-197.
146. Pavlis, M. et al. 2008. The effect of pruning on drag-induced bending moment of shade trees. *Arboriculture & Urban Forestry* 2008:207-215.
147. Pearce, R. 2000. Decay development and its restriction in trees. *J. Arboriculture* 26:1-11.
148. Perry, E. and G. Hickman. 1987. Wound closure in eucalyptus. *J. Arboriculture* 13:201-202.
149. Peterson, J. and D. Helmer. 1992. A wound treatment system to suppress cankers and wood rots in trees. *J. Arboriculture* 18:155-160.

150. Pfisterer, P. 1999. *Geholzschnitt nach den Gesetzen der Natur (Tree pruning according to the laws of nature)*. Verlag Eugen Ulmer, Stuttgart, Germany.
151. Pietilä, J. 1989. Factors affecting the healing-over of pruned Scots pine knots. *Silva Fennica* 23:125–158.
152. Pinkard, E. 2002. Effects of pattern and severity of pruning on growth and branch development of pre-canopy closure *Eucalyptus nitens*. *Forest Ecology Management* 157: 217-230.
153. Pinkard, E. and C. Beadle. 1998. Effects of green pruning on growth and stem shape of *Eucalyptus nitens*. *New Forests* 15:107-126.
154. Pinkard, E. et al. 1999. Modeling the effect of physiological responses to green pruning on net biomass production of *Eucalyptus nitens*. *Tree Physiology* 19:1-12.
155. Reich, P. et al. 1993. Growth, nutrition and gas exchange of *Pinus resinosa* following artificial defoliation. *Trees - Structure and Function* 7:67-77.
156. Schatz, U. et al. 2008. Influence of saw and secateur pruning on stem discolouration, wound cicatrisation, and diameter growth of *Betula pendula*. *Silva Fennica* 42:295-305.
157. Schnelle, M. and J. Klett. 1992. Effects of pruning and bark ringing on total nonstructural carbohydrates in crabapple. *J. Arboriculture* 18:192-196.
158. Schwarze, F. 2001. Development and prognosis of decay in the sapwood of living trees. *Arboricultural J.* 25:321-337.
159. Schwarze, F. and C. Heuser. 2006. Stem wounds - potential entry courts for wood decay fungi? *Arboricultural J.* 29:101-119.
160. Schwarze, F. et al. 2007. Defence reactions and fungal colonisation in *Fraxinus excelsior* and I after stem wounding. *Arboricultural J.* 30:61-82.
161. Shigo, A. 1981. To Paint or Not to Paint. in *Handbook of Pruning*, Brooklyn Botanic Garden, Brooklyn, New York.
162. Shigo, A. 1983. Targets for proper tree care. *J. Arboriculture* 9:285-94.
163. Shigo, A. 1984. Compartmentalization: a conceptual framework for understanding how trees grow and defend themselves. *Annual Review Phytopathology* 22:189-214.
164. Shigo, A. 1985. How tree branches are attached to trunks. *Canadian J. Botany* 63:1391-1401.
165. Shigo, A. 1989. *Tree Pruning: A Worldwide Photo Guide*. Shigo and Trees, Associates, Durham, New Hampshire.
166. Shigo, A. 1990. *Pruning Trees near Electric Utility Lines*. Shigo and Trees, Associates, Durham, New Hampshire.
167. Shigo, A. and E. Larson. 1969. *Photo guide to the patterns of discoloration and decay in living northern hardwood trees.*, Research Paper, USDA Forest Service.
168. Shigo, A. and H. Marx. 1977. *Compartmentalization of decay in trees*. Agricultural Information Bulletin, USDA Forest Service.
169. Shigo, A. and C. Wilson. 1977. Wound dressings on red maple and American elm: effectiveness after five years. *J. Arboriculture* 3:81-87.
170. Shigo, A. et al. 1979. *Internal defects associated with pruned and non-pruned branch stubs in black walnut.*, Research Paper, USDA Forest Service, Northeastern Forest Experiment Station, Broomall, PA.
171. Shortle, W. 1979. Mechanisms of compartmentalization of decay in living trees. *Phytopathology* 69:1147-1151.

172. Slabaugh, P. 1957. Effects of live crown removal on the growth of red pine. *J. Forestry* 55:904-906.
173. Smiley, E. 2003. Does included bark reduce the strength of codominant stems? *J. Arboriculture* 29:104-106.
174. Smiley, E. and B. Kane. 2006. The effects of pruning type on wind loading of *Acer rubrum*. *Arboriculture & Urban Forestry* 32:33-40.
175. Smiley, E., C. Greco, and J. Williams. 2000. Brace rods for codominant stems: installation location and breaking strength. *J. Arboriculture* 26:170-176.
176. Smith, D. et al. 1996. *The Practice of Silviculture: Applied Forest Ecology*, 9th ed. Wiley, New York.
177. Smith, K. 2006. Compartmentalization today. *Arboricultural J.* 29:173-184.
178. Stefulesco, C. 1995. Traditional pruning in France. presented at the Second European Congress of Arboriculture, Versailles, France.
179. Stobbe, H. et al. 2002. Behandlungsmöglichkeiten von frischen Anfahrsschäden an Alleebäumen (Possible treatment of fresh wounds on street trees). in *Jahrbuch der Baumpflege (Yearbook of tree care)*. ed. D. Dujesiefken and P. Kockerbeck. Thalacker Medien, Braunschweig, Germany.
180. Stobbe, H. et al. 2002. Developmental stages of fine structure of surface callus formed after debarking of living lime trees. *Annals Botany* 89:773-782.
181. Svhra, P. 2004. Principles of eradicative pruning. *J. Arboriculture* 20:262-71.
182. Toussaint, A. et al. 2002. Analysis of physiological and economical impacts of the roadside trees pruning. *Biotechnol. Agron. Soc. Environment* 6:99-107.
183. von Aufsess, H. 1975. The formation of a protective zone at the base of branches of broad-leaved and coniferous trees and its effectiveness in preventing fungi from penetrating into the heartwood of living trees. *Forstwissenschaftliches Centralblatt (German J. of Forest Science)* 94:140-152.
184. von Aufsess, H. 1984. Some examples of wood discolourations related to mechanisms for potential protection of living trees against fungal attack," *Intern. Assoc. Wood Anatomy Bulletin* 5:133–138.
185. Wang, S., C. Chiu, and C. Lin. 2003. Application of the drilling resistance method for annual ring characteristics: evaluation of Taiwania (*Taiwania cryptomerioides*) trees grown with different thinning and pruning treatments. *J. Wood Science* 49:116-124.
186. Wardlaw, T. and W. Neilsen. 1999. Decay and other defects associated with pruned branches of *Eucalyptus nitens*. *Tasforests* 11:49-57.
187. Watson, G. 1998. Tree growth after trenching and compensatory crown pruning. *J. Arboriculture* 24:47-53.
188. Wilson, B. 2000. Apical control of branch growth and angle in woody plants. *American J. Botany* 87:601-607.
189. Wiseman, D. et al. 2006. Pruning and fertiliser effects on branch size and decay in two *Eucalyptus nitens* plantations. *Forest Ecology Management* 225:123-133.
190. Yamamoto, S. 1985. Programmed tree pruning and public liability. *J. Arboriculture* 11:15-17.
191. ZTV-Baumpflege. 2001. Additional technical agreements and guidelines for arboriculture. 4th edition. Forschungsgesellschaft Landschaftsentwicklung - Landschaftsbaue (FLL).