

Assessing Pruning Wound Damage

by Dr. Kim D. Coder, University of Georgia

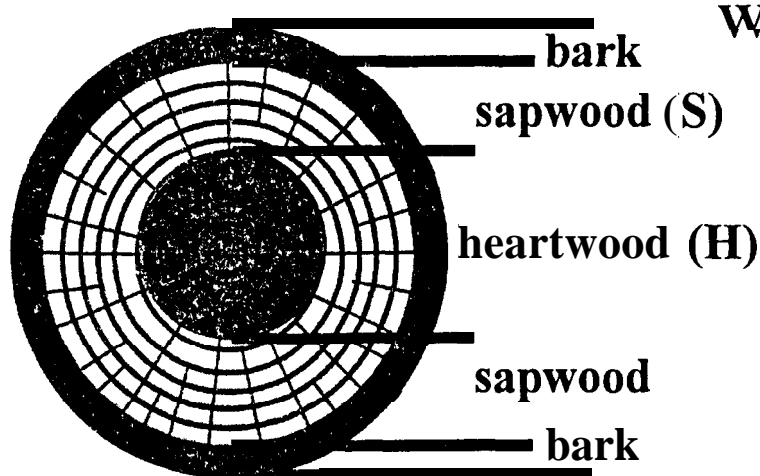
July 1996

The act of pruning is a stressful and stunting process for a tree. Pruning is also a point of liability risk to the pruner. Wounds open the tree to colonization by a myriad of organisms, to environmental problems, and to structural integrity losses from setting of defensive boundaries. Mechanical injury is the single worst form of damage with which a tree must biologically deal.

Pruning, following standards and best management practices, and abusive cutting and trimming, all generate wounds of various sizes and depths. The potential risks to the health and structure of the tree from any given wound are dependant upon individual genetics, species, site, season, wound history, sanitation, method of wounding, and characters of the wound. For example, a properly pruned branch with a wound area having tight, unmarred bark and an intact branch collar would be relatively good. By comparison, a similarly sized wound between branch bases (inter-nodal cut) made with a saw that tears the bark and a sawyer that nicks remaining bark areas would be relatively bad.

To better understand and minimize damage to trees during pruning, an assessment system was developed. This system is based upon long-term tree functions and reactions to wounding. In this assessment system it is assumed that proper standard pruning practices will be followed. Within standard pruning practices, heartwood and decay column exposure will be used to estimate damage to the health and structure of the tree now, and into the future. The basic tenets of this system are: 1) fewer wounds are better; 2) shallower wounds (fewer annual rings crossed) are better; 3) smaller wounds are better; 4) less heartwood crossed (limited defensive reactions and no living cells for sense or supply) is better; and, 5) fewer tree-set defensive boundaries crossed are better (than other types of wounds).

This assessment system provides a user with the maximum number of cuts per wound damage class that should be made. This system also provides a means of assessing pruning wounds already present in a tree. The basis of this system is examination of the cross-section of the living base of any properly pruned branch. It is critical that assessors be able to differentiate between heartwood, sapwood, and chemically altered wood areas (decay, discoloration, and defensive responses) in each species pruned. Bark and wood tears, rips, and fractures stemming from pruning mistakes are not included in this assessment.



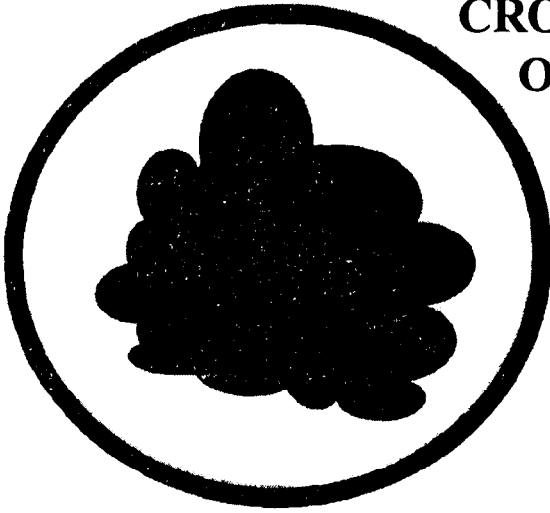
WOUND CROSS-SECTIONS



The University of Georgia

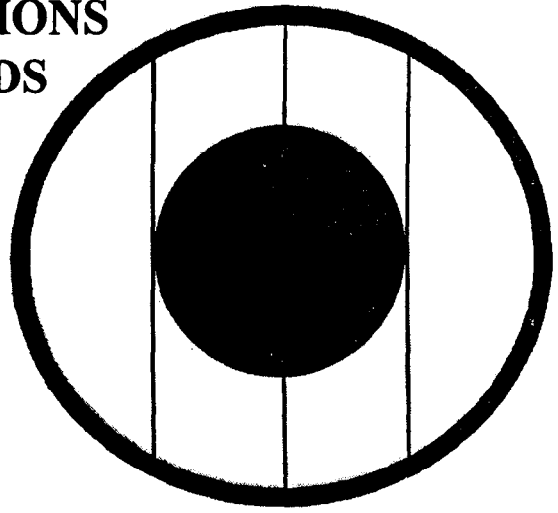
THE UNIVERSITY OF GEORGIA, THE UNITED STATES DEPARTMENT OF AGRICULTURE AND COUNTIES OF THE STATE COOPERATING THE COOPERATIVE EXTENSION SERVICE OFFERS EDUCATIONAL PROGRAMS, ASSISTANCE AND MATERIALS TO ALL PEOPLE WITHOUT REGARD TO RACE, COLOR, NATIONAL ORIGIN, AGE, SEX OR HANDICAP STATUS
A UNIT OF THE UNIVERSITY SYSTEM OF GEORGIA.
AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION ORGANIZATION

**CROSS-SECTIONS
OF WOUNDS**



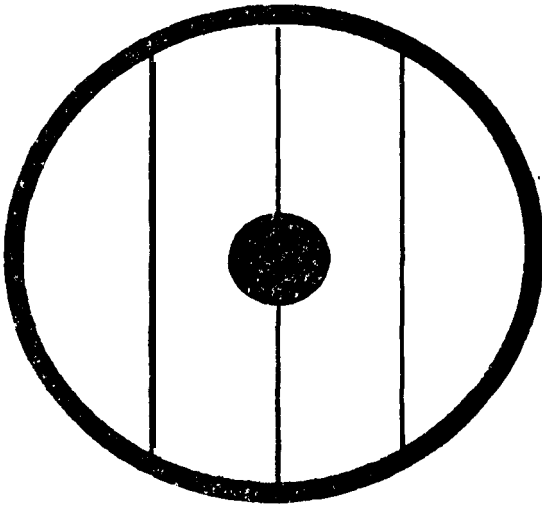
MASSIVE

CROSSING ALREADY DEVELOPED
DECAY AND DISCOLORATION
BOUNDARIES



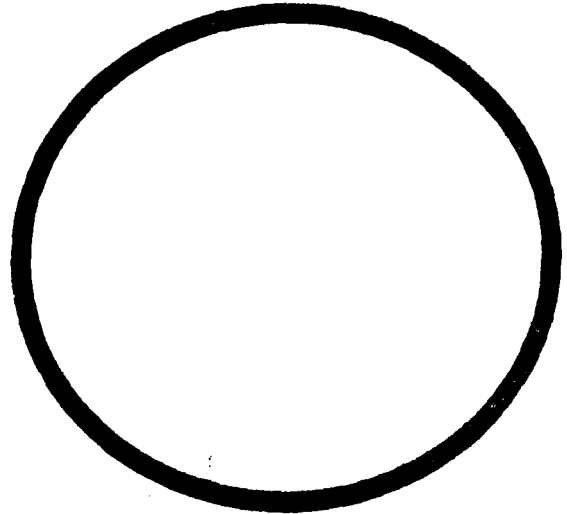
MAJOR

HEARTWOOD EXPOSURE
($>1/4$ DIAMETER OF WOUND)



LARGE

HEARTWOOD EXPOSURE
($<1/4$ DIAMETER OF WOUND)



STANDARD

SAPWOOD EXPOSURE

**ASSESSING PRUNING
DAMAGE**

(maximum number of
cuts to a single tree)

massive	1
major	3
large	7
standard	15
minor	31

MINOR

SAPWOOD EXPOSURE ACROSS LAST
TWO ANNUAL RINGS AND POINT
BARK PENETRATIONS

