The Art of Felling Timber

by Roy W Hauser
illustrated by Kerith Reid

The Art of Felling Timber
Comprehensive Edition

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Find us on the Web at www.theartoffellingtimber.com

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PREFACE

Note: Timber felling is one of the most dangerous occupations in the world.

This book was created to teach the Timber Feller who already has the working knowledge to fell trees; this book is not for the beginner chainsaw operator. The Art of Felling Timber is a study guide that presents rules of safety and alternative methods for safely felling trees, including those that have been compromised by fire. The procedures and techniques that are in this guide book will assist the feller and felling partner (felling team) in making the right choices, to fell or not to fell trees, including trees that have been fire-weakened. Methods discussed in this book include how to safely remove dangerous trees or just to notify/flag and walk away. This book was designed to teach the felling team to work together during complex tree felling scenarios, and to have a strong mutual understanding of critical decision making within the team. A training simulation program at the back of this book, using an artificial 2-dimensional chainsaw and a number of trees, including fire-weakened trees and bucking template scenarios, can be used. This will give the feller prior working knowledge on how to understand the safety rules and cutting procedure that would be used when faced with trees, fire-weakened trees and bucking situations. The number 1 rule of thumb is safety first for you and your fellow workers.

The situations described in this book are not the only methods available; none of the material covered in this book should ever be attempted by any individual unless trained or thoroughly educated in tree felling, fire-weakened tree felling, and the bucking process.

Keeping your eyes on the tree top is an important part of safety while cutting hazard trees.

Table of Contents

The correct equipment is the key to felling timber.

Equipment List for Felling Timber

Equipment List for Felling Timber

Note: *The equipment in the list below can be split up between the felling team members, the feller, and felling partner. This is for weight distribution, hiking, or helicopter flight time. Not having the proper equipment can create unsafe conditions.*

Power Head: The power head that a feller should use is determined by the size of tree that the felling team will be working with. Have a larger power head available for large tree scenarios.

Chainsaw Bar: The size of the chainsaw bar should also reflect the size of the trees the feller will be working with. Have larger chainsaw bars available for larger tree scenarios.

Felling Axe: The felling team should have an axe head that weighs between 4 and 5 pounds; it should also have a short, strong handle. A shock bumper placed under the axe head will deflect impact with the wedges when striking them with the felling axe.

Felling Wedges: Carry 3 to 6 wedges to allow for double stacking if necessary. Wedge sizes should be determined by the size of trees the feller will be working with. Have larger wedges available for working with larger trees.

Dolmar: This is a fuel and chain bar oil container in one. There are small and large containers; choose the size of the container that will last for the work that you will be involved in.

Scrench and Factory Tools: For the power head that you have chosen to work with, be sure to have these factory tools with you at all times: a scrench (L-shaped allen or star wrench) and a tuning screwdriver. Your felling partner (spotter) should also have a set of these factory tools for spares.

Chain File: Using a round or triangle chain file is determined by the type of chain that you will be cutting with. A round file is for a standard cutting tooth and a triangle file is for a chisel bit cutting tooth. Always have a flat file with you for the chain rakers or the burs on the chain bar. Make sure the files have handles.

Saw Chain: Standard or chisel bit saw chains can be used. A skip tooth saw chain is always recommended. The chain length is determined by the length of the chain bar you will be working with. The feller and felling partner (spotter) should carry a secondary chain for back up; this should also be the same chain that the feller is using.

The Mechanical Applications for Felling Timber

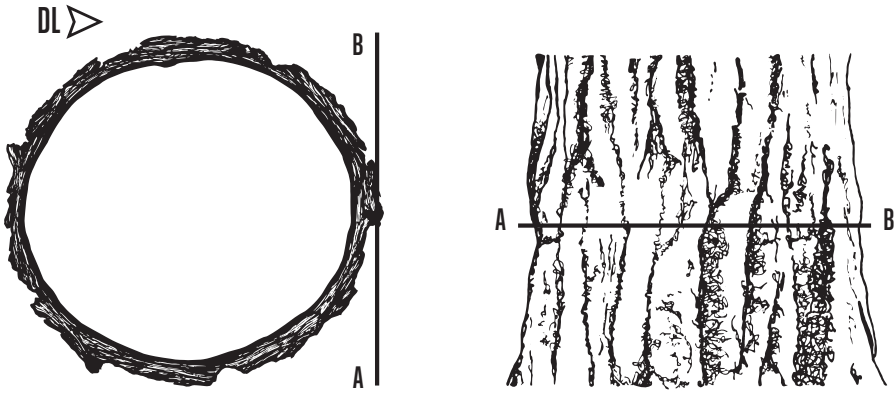
The correct cutting posture is vital while cutting dangerous trees.

The Mechanical Applications for Felling Timber

Note: *The following mechanics of felling timber is a visual way to understand the process of tree felling in a step-by-step method of terminology and diagnostic illustrations. The Face cuts of these diagrams are the* DL▷ *Direction of Lean.*

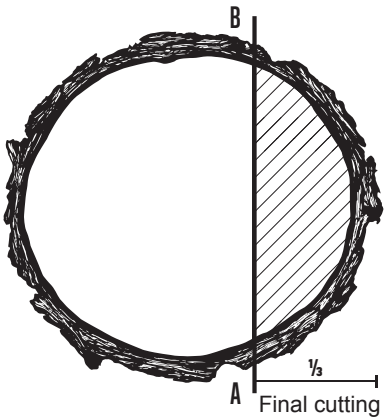
The Directional Cut:

1. Align the chainsaw bar from point A to point B, horizontal to the tree, at the height desired by the feller, who can score the bark with the chainsaw to see if the Directional Cut is level. Make sure the chainsaw is level horizontally and vertically. (Illustrations 1-1)



1-1

2. Start the Directional Cut based on tree lean and strip layout. The final cutting depth needs to be 1/3 of the tree diameter from point A to point B (unless the tree has heavy lean, the tree has been fire damaged, or damage has affected the height of the tree or its circumference). Start the Directional Cut, by making a level cut into the surface of the tree. Make sure the chainsaw is level horizontally and vertically. Cut into the tree, a depth of two to three inches, with the chainsaw motor head, pointed in the general direction of the Gunning sight. Cut your way back to point A and B of the Directional Cut, making small cutting adjustments on both sides of A and B of the Directional cut, until you reach the 1/3 point of A and B of the Directional Cut, staying in line with your Gunning Sight of the chosen direction. (Note: Making small cutting movements to point A and B of the Directional Cut, staying aligned with your Gunning Sight, will help you to stay in control and not cut beyond the depth of the 1/3 rule.) (NOTE: Adjust the Gunning Sight according to the direction of the fall.) (NOTE: Make sure the Gunning Sight is pointed in the direction of the fall when you reach point B of the Directional Cut.) Exit the Directional Cut with the throttle on; this is to clean the debris out of the Directional Cut kerf. (Illustrations 1-2)



1-2

The Mechanical Applications for Bucking Trees

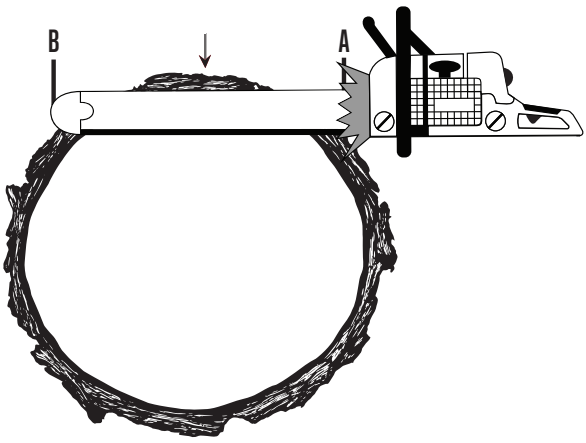
Bucking can have many different bind scenarios.

The Mechanical Applications for Bucking Trees

Note: *The following mechanics of bucking timber is a visual way to understand the process of bucking trees in a step-by-step method of terminology and diagnostic illustrations. Relieving bind pressure at a smaller diameter location of the tree before bucking larger sections will help to avoid a dangerous situation. Analyze all possibilities and buck with CAUTION.*

Bucking: Top-cut/Alignment

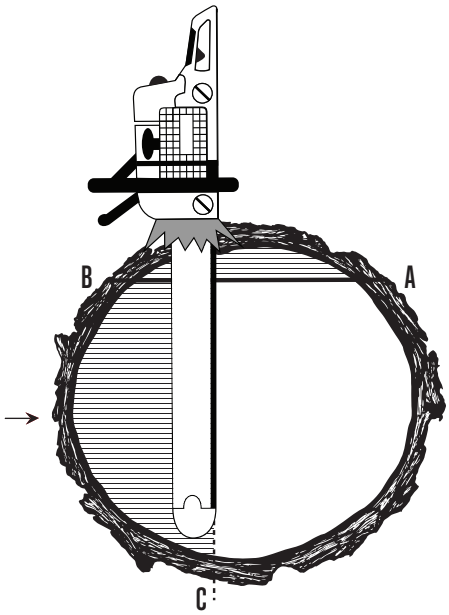
1. Align the chainsaw bar from point A to point B, horizontal to the tree, at the desired location of the cut. Dawg the chainsaw in at point A and make a Kerf Cut with the chainsaw to see if the alignment is straight. (NOTE: The depth of the Top Cut is 1 to 2 inches in depth. Tree diameter and bind can also determine this depth). Make sure the chain bar is straight horizontally and vertically from point A to point B. (Illustrations 1-1)



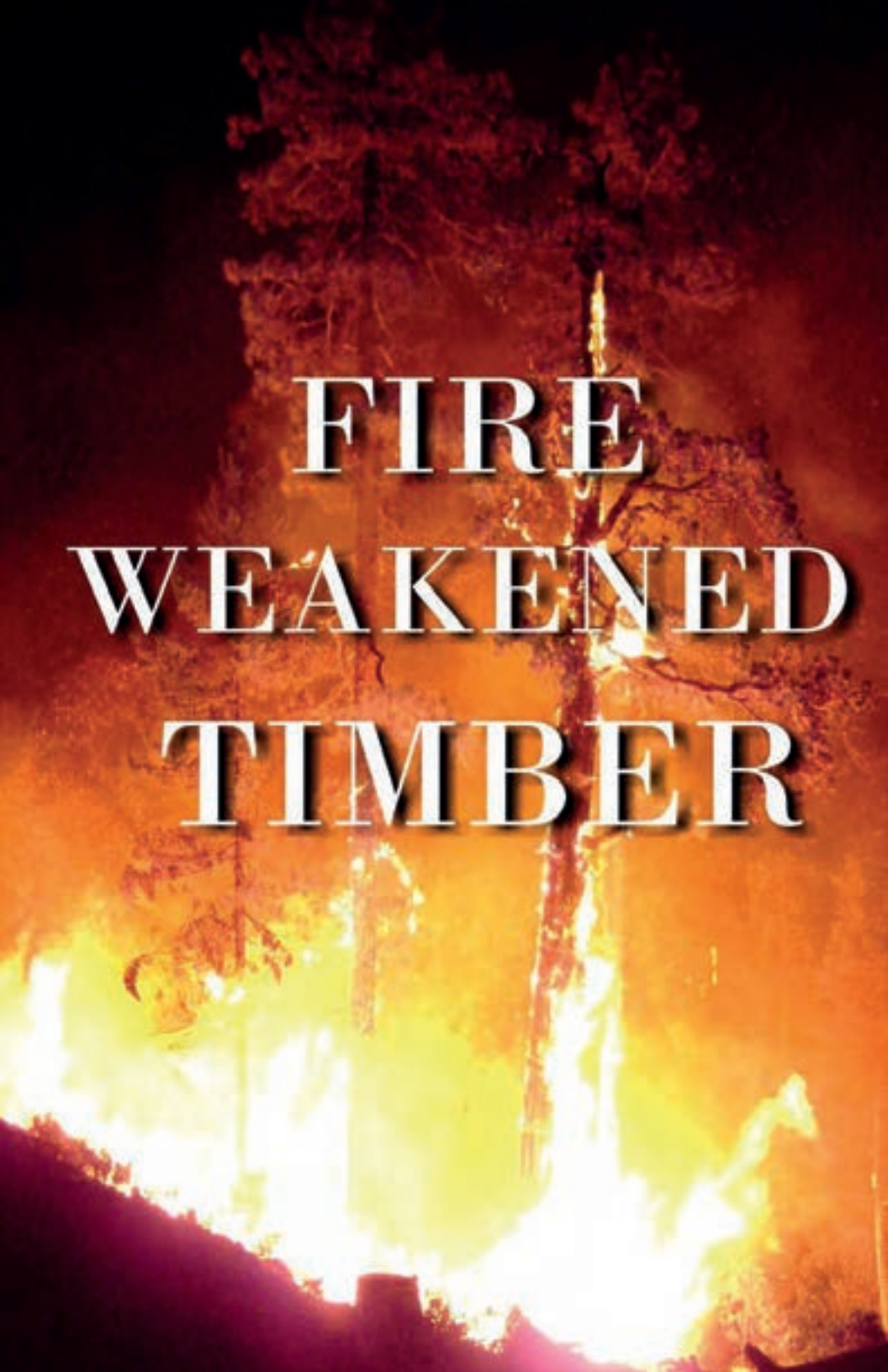
1-1

Off-Side Cut:

2. When the Top Cut is complete, align the chain saw at Top Cut point B, and cut the off side of the tree to point C of the Off-Side Cut. With the chainsaw in this vertical position, and staying in alignment with the Top Cut B, the depth of the Off-Side Cut will be 1/3 of the tree diameter. (NOTE: the bind of the tree can change the depth of this Off-Side Cut). (Illustration 1-2)



1-2


FIRE
WEAKENED
TIMBER

Note: *The situations described in this section of the manual (Fire-Weakened Timber) are not the only methods available. None of the material covered in this section should be attempted by any individual unless trained in the field of Fire- Weakened Tree cutting, or has had ten thousand hours of tree felling experience. This part of the training manual will address the size up, the Fire- Weakened Tree evaluation process, the mechanical application processes, alternatives to tree cutting, or just flagging, notifying and walking away.*

Knowing your level of experience and evaluating safety concerns is the key factor before felling fire-weakened trees.

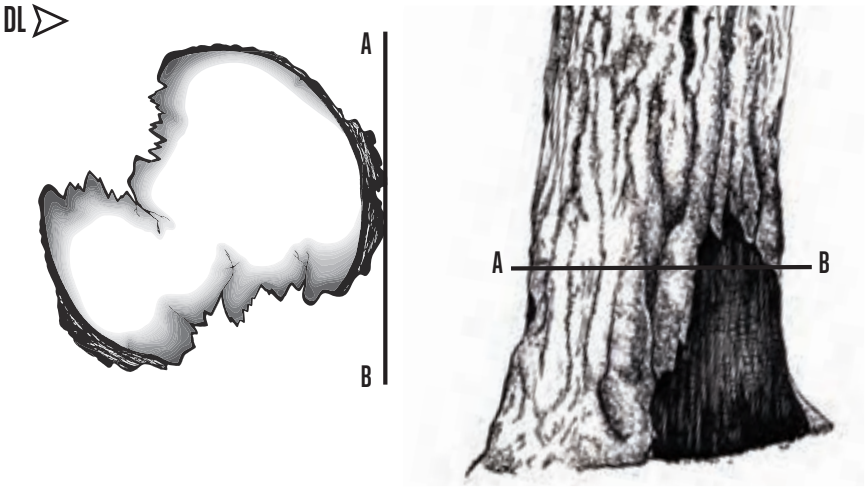
Stump mechanics is critical when cutting fire-weakened trees.
Photo: Feller James Goodman (Good Wood Timber Fellers)

Snag Burned Tree

Snag-Burned Trees

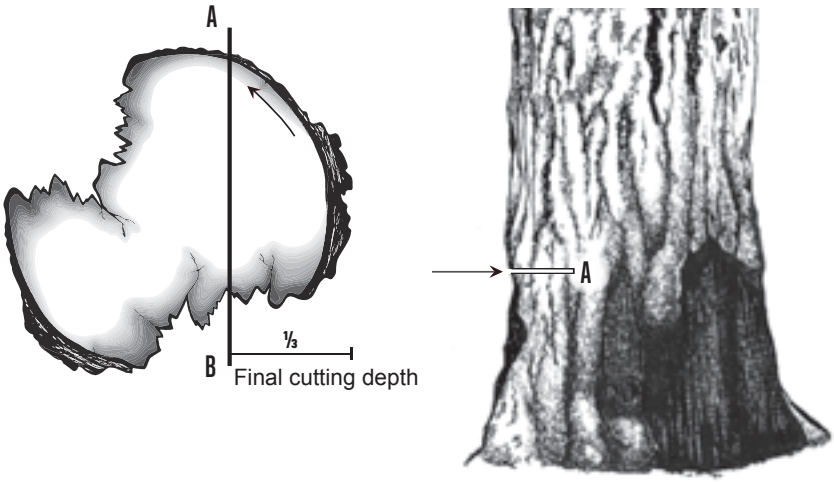
The Directional Cut:

1. Align the chainsaw bar from point A to point B, horizontal to the tree, at the desired height of the feller. (NOTE: Waist height is recommended.) Score the bark with the chainsaw to see if the Directional Cut is level. Make sure the chainsaw is level horizontally and vertically. (Illustrations 4-1)



4-1

2. Start the Directional Cut based on tree lean and strip layout. The cutting depth needs to be 1/3 of the tree diameter from point A to point B unless the tree has heavy lean or the tree has been damaged and the damage affects the height of the tree, its circumference, or wood integrity. Start the Directional Cut by making a level cut into the surface of the tree. Make sure the chainsaw is level horizontally and vertically. Cut in a depth of 1 inch, and then cut your way back to point A of the Directional Cut. Dawg in the power head at point A of the Directional Cut. (NOTE: Adjust the Gunning Sight according to the direction of the fall.) Cut to Directional Cut point B. (NOTE: Make sure the Gunning Sight is pointed in the direction of the fall when you reach point B of the Directional Cut.) Exit the Directional Cut with the throttle on to clean the debris out of the Directional Cut kerf. (Illustrations 4-2)



4-2

Training Simulations

Note: This training simulation will give the feller knowledge in several fire- weakened tree scenarios prior to attempting cutting in a real situation. Using the 2 dimensional chainsaw at the back of the book like a ruler, and with a dry erase pen, the feller can draw in the designated cuts, using the chain bar of the 2 dimensional saw as a straight edge. This will give the feller the opportunity to practice simulated cutting, and will train the feller in gunning sight use for directional accuracy in these different felling and bucking situations. *These are only basic templates and fire-weakened template scenarios; real life situations will vary in complexity.*

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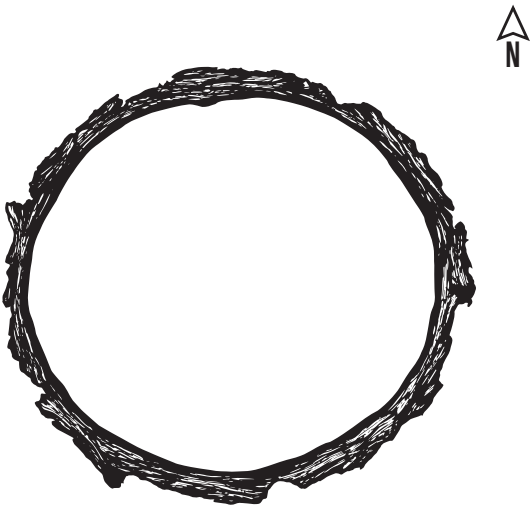

Single Cut Practice Simulation
Felling & Bucking

Author, Roy Hauser.

About the Author

The author, Roy Hauser, has decades of experience in the field of hazardous timber felling. He works to educate for the safety of Timber Fellers by designing new course materials.

Roy wrote The Art of Felling Timber to teach Fellers what to expect before facing dangerous and complex felling scenarios, having over 30 years of experience in all aspects of timber felling. Roy was a co-author of the S-212 chainsaw course in 1992 in a segment called Fire Weakened Timber.

He was a saw boss for the Zig Zag Interagency Type 1 Hotshot crew based out of Mount Hood Oregon, under the supervision of Paul Gleason.

The author has worked in the logging and forest industry for over 20 years, managing private timberlands for wildland fire prevention. Roy Hauser has also worked as a contract timber feller on many wildland forest fires all over the Pacific Northwest. He has trained, what he considers to be, some of the finest Timber Fellers in the field today, using the techniques in this book.

Roy is currently a Region 6 consultant for the USFS and consults the BLM in Oregon. His message: “I hope that all who study The Art of Felling Timber will share in the safety, mechanical application, teamwork, and discipline that this guidebook has to offer.”