

USDA Forest Service National Sawyer Training: Developing Thinking Sawyers



Student Guide: Prework

**USDA Forest Service National Sawyer Training:
Developing Thinking Sawyers**
Module 3.2: Crosscut Saw Limbing and Bucking

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Introduction

Module 3.2 covers limbing and bucking techniques using a crosscut saw. The instructor will first present concepts in the classroom and will follow up with demonstrations. You will then practice these techniques in the field under controlled and supervised conditions.

Prewrite Topics

- Saw team communication
- Brushing
- Limbing
- Binds

Objectives

When you complete the full module during training, you will be able to:

- Explain the importance of saw team communication.
- Define brushing and limbing.
- Identify proper limbing techniques.
- Identify the different types of binds.
- Describe a bucking plan and techniques.

Saw Team Communication

A hallmark of any good crosscut sawyer or saw team is fun, effective, and efficient communication. The saw team must understand the cut plan and associated hazards, and all members of the team must be on the same page to work efficiently and safely. If communication breaks down (from fatigue, dehydration, hunger, lack of understanding, disagreement, etc.), the saw team should cease all sawing operations until good communication and team can be restored. Accidents are most prone to happen in the afternoons when energy is low and decision making is strained.

Brushing

Brushing involves cutting material, whether it is light, grassy material or smaller, woody material, such as branches. In the context of crosscut bucking work, sawyers use brushing to clear around the base of the log where cutting happens.

Nonmotorized tools that facilitate brushing often include lopping and pruning shears and brush hooks. In some cases, sawyers use clearing knives or Swedish brush axes.

Lopping and pruning shears are similar in design and use, though lopping tools have longer handles designed to improve reach. Cutting edges also vary; one blade binds and cuts a stem

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against an anvil or beveled hook. For smaller diameter limbs, lopping shears several branches cleanly and flush with the material the sawyer plans to cut.

When brushing out an area with loppers, consider if the material is small enough in diameter to cut with the tool or if another implement, such as an ax, is more suitable for the job. While seemingly innocuous, do not underestimate proper body position and footing when cutting and moving materials. At times, other crew members may help remove cut brush. Stay cognizant of spacing when others are working in close proximity and stay in communication as you pull and remove material.

Limbing

Limbing is severing limbs from the main stem/bole of a tree. A sawyer may use limbing when the tree is standing vertically or lying on the ground. Removing limbs from trees that are not anchored may cause the tree to roll or move.

Bucking

Sawing longer logs into shorter lengths is known as bucking. The size of the cut pieces depends on the end use or task at hand. To safely and most effectively buck logs or limbs, you must understand binds.

Binds

A **bind** is a series of pressures in a felled tree resulting from objects (such as terrain or stumps) that prevent the tree from lying flat on the ground. The forces at the bearing points of the log create compression and tension. Understanding these forces is critical to a safe and successful bucking operation.

These binds determine the bucking techniques and procedures you will use. Look for landforms, stumps, blowdown, and other obstacles that prevent a log from lying flat and causing binds. Different pressure areas result when a bind occurs.

Tension is the physical force where the wood fibers are pulled apart (the kerf opens) that can result in a release of energy. Tension is opposite of **compression** in the log and contains the stored energy that, when released, can cause injury (figure 3.2.1). Here the wood fibers push together. In this portion of the log, the kerf closes as the sawyer makes the cut. It is extremely important to understand how fast and where the log may move when you cut it. The release of tension can often occur quickly, leaving you little time to react.

You may not discover some compression and tension points until the process of cutting starts, or compression and tension points may change while you are cutting the log. This is one of the many reasons that risk management and situational awareness are so critical.

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Figure 3.2.1—Compression versus tension.

Determining Binds

There are four types of binds—top, bottom, side, and end. Normally, logs have a combination of two or more binds.

In a **top bind**, the tension is on the bottom of the log, and the compression is on the top (figure 3.2.2).

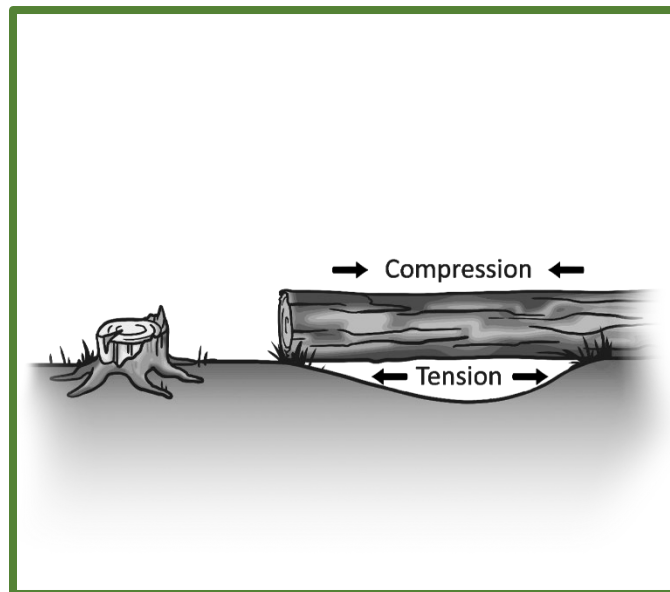


Figure 3.2.2—Top bind.

In a **bottom bind**, the tension is on the top of the log, and the compression is on the bottom (figure 3.2.3).

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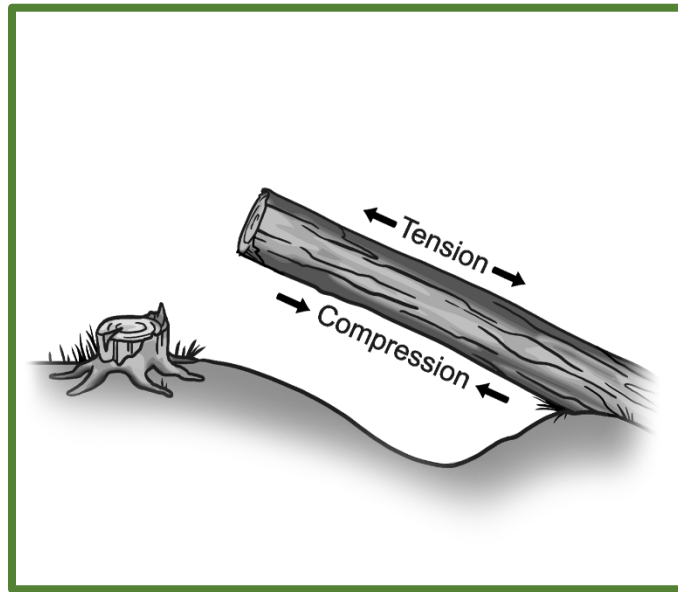


Figure 3.2.3—Bottom bind.

In a **side bind**, tension is exerted sideways on the log (figure 3.2.4). This often creates a dangerous situation. The side-bound log has tremendous potential to move fast with great force toward the tension side of the log when severed. It is very important to cut side-bound logs from the safe (or good) side of the tree.

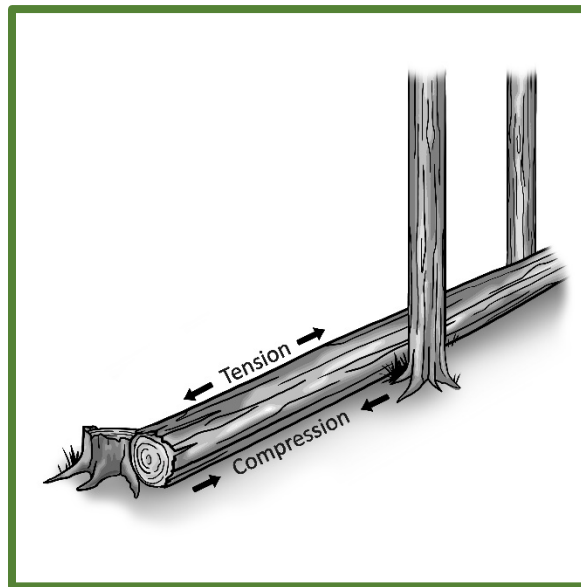


Figure 3.2.4—Side bind.

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In an **end bind**, weight compresses the entire cross section of the log (figure 3.2.5). Here, there is potential for the kerf to close with any cut you select. Wedges are imperative. Always be aware that the uphill side of the log could move or roll as the sawyer makes the cut. Consider finishing the cut with only one sawyer on the good side of the log. If the log does not have a clear good side, consider bucking with a slight angle cut to create a “good side” where the top section cannot roll.

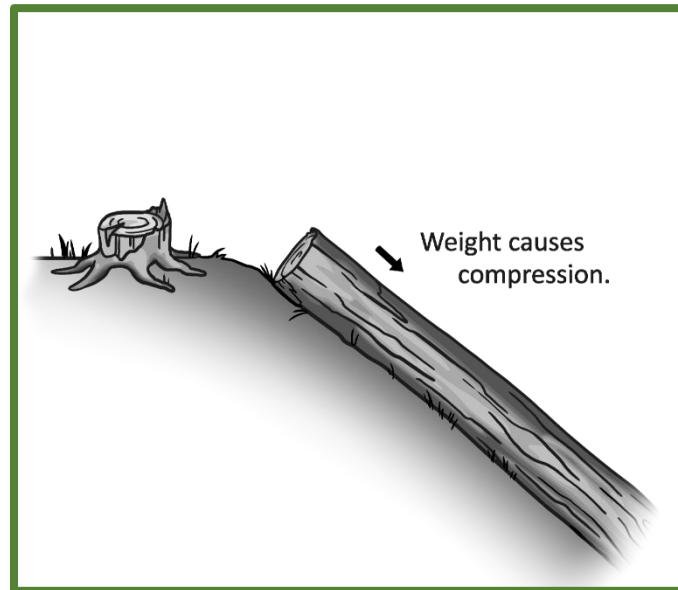


Figure 3.2.5—End bind.

Summary

In this prework packet, you learned about saw team communication, limbing, and binds.

This knowledge will aid in learning the material presented in Module 3.2: Crosscut Saw Limbing and Bucking of the “Developing Thinking Sawyers” course.

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