

USDA Forest Service National Sawyer Training: Developing Thinking Sawyers



Instructors Guide

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

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Module 3.2: Crosscut Saw Limbing and Bucking

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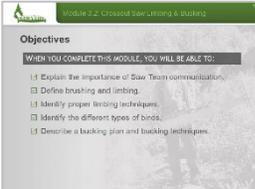
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Module 3.2: Crosscut Saw Limbing and Bucking

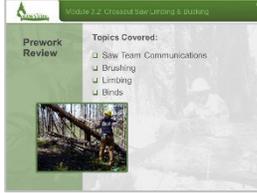
Module 3.2: Crosscut Saw Limbing and Bucking

Slide/action	Content
	<h3>Welcome and Introduction</h3> <p>Time: 106 minutes</p> <p>Note: Present concepts in the classroom and follow up with demonstrations. The students will then practice these techniques in the field under controlled and supervised conditions. Conduct the field portion of this module at a cutting site that has downed and/or standing trees, brush, and small-diameter regeneration.</p> <p>DISPLAY FIRST SLIDE</p>
<p><i>Slide 1: Crosscut Saw Limbing and Bucking</i></p> 	<h3>Introduction</h3> <p>Say:</p> <p>Welcome to Module 3.2 of the “Developing Thinking Sawyers” course. This module covers limbing and bucking techniques using a crosscut saw.</p> <p>DISPLAY NEXT SLIDE</p>
<p><i>Slide 2: Module Topics</i></p> 	<h3>Module Topics</h3> <p>REVIEW</p> <p>Review the module topics listed on the slide.</p> <p>DISPLAY NEXT SLIDE</p>
<p><i>Slide 3: Objectives</i></p> 	<h3>Objectives</h3> <p>REVIEW</p> <p>Review the objectives listed on the slide.</p> <p>DISPLAY NEXT SLIDE</p>

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Slide 4: Prewrite Review



Prewrite Review

REVIEW

Review the topics covered in the prework packet.

Say:

We will cover some of these topics again here in the classroom because they are important for safety or have more details you need to know. We will review the rest now.

INSTRUCTOR NOTE:

Allow students time to read through the summaries and answer the questions in the student guide. Then discuss the answers, confirm they are right, and correct any misconceptions.

Review Questions

Q: Why is communication important when working as a saw team during crosscut bucking operations?

A: Answers should include:

- The saw team understands the cutting plan and associated hazards, and team members should be on the same page to work efficiently and safely.
- If communication breaks down, the saw team should cease all sawing operations until good communication is restored.
- Good communication is essential for good decision making and to avoid accidents, especially in the afternoons when energy is low and decision making is strained.

Q: Why is accurately assessing binds important for a crosscut bucking operation?

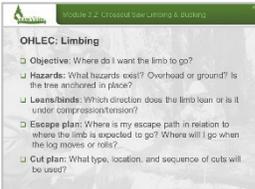
A: Answers should include:

- To maximize saw team efficiency by identifying the least amount of necessary work to accomplish the saw team's objective
- To keep the sawyers safe
- To ensure you develop the correct escape plan
- To prevent the saw from becoming pinched
- To ensure you can carry out the cut plan smoothly and that the cut plan matches/accomplishes the objective

DISPLAY NEXT SLIDE

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Slide/action	Content
<p><i>Slide 5: Limbing</i></p> 	<h3>Limbing</h3> <p>Say:</p> <p>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.</p> <p>DISPLAY NEXT SLIDE</p>
<p><i>Slide 6: OHLEC: Limbing</i></p> 	<h3>OHLEC: Limbing</h3> <p>Say:</p> <p>It is important to determine the stability of the tree when planning a limbing operation. Limbing safety and efficiency requires adjusting constantly, focusing on cutting one limb at a time, and implementing OHLEC.</p> <p>During a limbing operation, you will consider the following when doing your OHLEC size-up:</p> <ul style="list-style-type: none">▪ Objective: Where do you want the limb to go?▪ Hazards: What hazards exist? Are the hazards overhead or on the ground? Is the tree anchored in place?▪ Leans/binds: Which direction does the limb lean or is it under compression/tension?▪ Escape plan: Where is my escape path in relation to where you expect the limb to go? Where will you go when the log moves or rolls? Escape paths can and will change as more limbs are cut.▪ Cut plan: What type, location, and sequence of cuts will you use? <p>DISPLAY NEXT SLIDE</p>

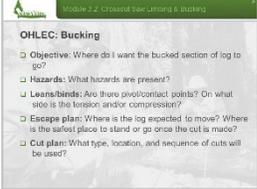
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Slide/action	Content
<p><i>Slide 7: Traditional Tools</i></p> 	<h3>Traditional Tools</h3> <p>Say:</p> <p>An ax is an incredibly functional tool for removing limbs from downed trees. Removing limbs with an ax often takes one or two swings and is much more efficient than limbing with a handsaw. Ax handling is taught in detail in Module 4: Ax Basics, Maintenance, and Use.</p> <p>DISPLAY NEXT SLIDE</p>
<p><i>Slide 8: Spring Poles</i></p> 	<h3>Spring Poles</h3> <p>Say:</p> <p>Spring poles are small trees or limbs which are bent over and under pressure. Cutting them in the wrong location can cause a sudden release of energy which could severely injure you.</p> <p>The safest way to handle spring poles is to avoid them. If you must release one, try to release it slowly. The best way to do so is to cut a series of parallel cuts at the apex of the bend, in compression fiber, on the underside of the spring pole. This allows the tension wood fiber on the top side to bend and release energy slowly.</p> <p>To determine the optimum point of release:</p> <ol style="list-style-type: none">1. Identify a straight vertical line from the stump to where it meets a straight, horizontal line from the highest point of the bend.2. Draw an imaginary line at a 45-degree angle from where the two lines intersect.3. Slowly make your parallel relief cut with a handsaw on the inside of the arc at the maximum point of compression. <p>Watch for the release of tension and be careful not to cut all the way through the stem. The result will be a 90-degree angle between the trunk and the stem that has little or no remaining tension/compression. At this point, the fiber on the tension side will still connect the pieces, which you can then cut through for removal.</p> <p>DISPLAY NEXT SLIDE</p>

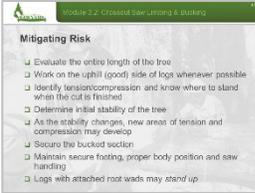
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Slide/action	Content
<p data-bbox="250 380 423 407"><i>Slide 9: Bucking</i></p> 	<h3 data-bbox="500 394 630 436">Bucking</h3> <p data-bbox="500 457 565 499">Say:</p> <p data-bbox="500 520 1409 667">Sawing longer logs into shorter lengths is known as bucking. It is important for you to consider the stability of the tree that you need to buck. You must also consider the effort of log removal, its end use, and the task at hand when deciding how big to buck the pieces.</p> <p data-bbox="500 695 1398 758">IMPORTANT! Be aware that the dangers associated with bucking can be equal to or greater than those present during felling operations.</p> <p data-bbox="500 785 711 814">DISPLAY NEXT SLIDE</p>
<p data-bbox="250 877 423 940"><i>Slide 10: OHLEC: Bucking</i></p> 	<h3 data-bbox="500 877 727 919">OHLEC: Bucking</h3> <p data-bbox="500 940 565 982">Say:</p> <p data-bbox="500 1003 1117 1045">Bucking involves asking the following questions:</p> <ul data-bbox="548 1052 1393 1318" style="list-style-type: none"><li data-bbox="548 1052 1393 1087">▪ Objective: Where do you want the bucked section of log to go?<li data-bbox="548 1094 1393 1129">▪ Hazards: What hazards are present?<li data-bbox="548 1136 1393 1199">▪ Leans/binds: Are there pivot/contact points? On what side is the tension and/or compression?<li data-bbox="548 1205 1393 1268">▪ Escape plan: Do you expect the log to move? Where is a safe place to stand or go once you make the cut?<li data-bbox="548 1274 1393 1318">▪ Cut plan: What type, location, and sequence of cuts will you use? <p data-bbox="500 1339 711 1369">DISPLAY NEXT SLIDE</p>

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Slide/action	Content
<p data-bbox="224 373 449 436"><i>Slide 11: Bucking for Efficiency</i></p>  <p data-bbox="224 982 449 1045"><i>Slide 12: Mitigating Risks</i></p> 	<h3 data-bbox="500 373 808 415">Bucking for Efficiency</h3> <p data-bbox="500 436 1383 541">You can often avoid unnecessary work with good planning in the cut plan of your OHLEC size-up process. Ask yourself questions such as, will I need to:</p> <ul data-bbox="548 567 1205 760" style="list-style-type: none">▪ Place runners across the tread?▪ Cut in different locations?▪ Use a lever to roll the log?▪ Chop instead of saw to avoid a bind?▪ Use wedges in tandem to alleviate severe top bind? <p data-bbox="500 772 1399 919">These are all things that you will learn as you gain experience. The more information you gather from the O-H-L-E parts of the size-up process and apply to the cut plan, the more efficient you will be when you begin cutting.</p>
	<h3 data-bbox="500 982 717 1024">Mitigating Risks</h3> <p data-bbox="500 1045 565 1087">Say:</p> <p data-bbox="500 1108 1091 1150">Here are some important tips to mitigate risk:</p> <ul data-bbox="548 1159 1416 1726" style="list-style-type: none">▪ Evaluate the entire length of the tree to determine contact/pivot points.▪ Work on the uphill (good) side of logs whenever possible. If working on the downhill (bad) side, make sure the log is chocked or otherwise stabilized.▪ Identify tension/compression and know where to stand when the cut is finished.▪ Determine the initial stability of the tree.▪ Understand that if the stability of the tree changes, new areas of tension and compression may develop.▪ Consider the need to secure the bucked section to prevent movement or rollout (steep slopes).▪ Maintain secure footing, proper body position, and saw handling.▪ Understand that logs with attached root wads may stand up while or after you buck them. <p data-bbox="500 1747 711 1780">DISPLAY NEXT SLIDE</p>

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Slide/action	Content
<p><i>Slide 13: Escape Plan</i></p> 	<h3>Escape Plan</h3> <p>Say:</p> <p>Having an escape plan is critical for your safety and the safety of those around you.</p> <h3>Working in Tandem</h3> <p>In a bucking operation there are four locations where you can position yourself relative to the cut. Sometimes all locations are safe, and two people can buck the log to completion standing anywhere around the log. Other times, due to log rollout, only one side of the log will be safe, and only one sawyer must make or finish the cut.</p> <p>Whether you are sawing alone or in tandem, you need to determine a good location from where to make your cut. Often both sides of a log will be safe, and it is safe to have two sawyers finish the cut together. Sometimes you must finish a cut sawing with your nondominant hand to allow the tree to move past where you are standing.</p> <h3>Steep Hill</h3> <p>Here is a diagram of a log that needs to be bucked. Uphill on either side of the cut is safe because the log cannot roll uphill. On the downhill side of the log, you could operate near the live standing tree if you choose because the tree would protect you from any potential log rollout. Here, there are three safe locations to operate from and one unsafe location.</p> <p>DISPLAY NEXT SLIDE</p>
<p><i>Slide 14: Binds</i></p> 	<h3>Binds</h3> <p>Say:</p> <p>It is not a question of if but when and where your saw will get stuck in a bucking operation. Landforms, stumps, blowdown, and other obstacles that prevent a log from lying flat cause binds. A log with a bind has areas of tension and compression.</p>

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	<p>The tension area is the portion of the log where the wood fibers are being stretched apart. In this portion of the log, the crosscut saw's kerf opens as the sawyer makes the cut. The other pressure area is called the compression area. Here the wood fibers push together. In this portion of the log, the kerf closes as the sawyer makes the cut.</p> <p>It is critical to identify binds before you create a cut plan, as the type of bind determines the bucking techniques and procedures you will use.</p> <h3>Transition</h3> <p>There are four types of binds we will discuss next—top, bottom, side, and end. Normally, logs have a combination of two or more binds.</p> <p>DISPLAY NEXT SLIDE</p>
<p><i>Slide 15: Top Bind</i></p> 	<h3>Top Bind</h3> <p>Say:</p> <p>In a top bind, the tension is on the bottom of the log, and the compression is on the top.</p> <p>INSTRUCTOR NOTE</p> <p>Discuss the example in the image and any relative experience you may have.</p> <p>DISPLAY NEXT SLIDE</p>
<p><i>Slide 16: Bottom Bind</i></p> 	<h3>Bottom Bind</h3> <p>Say:</p> <p>In a bottom bind, the tension is on the top of the log, and the compression is on the bottom.</p> <p>INSTRUCTOR NOTE</p> <p>Discuss the example in the image and any relative experience you may have.</p> <p>DISPLAY NEXT SLIDE</p>

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Slide/action	Content
<p data-bbox="215 380 456 436"><i>Slide 17: Bottom Bind: Slabbing Out</i></p> 	<h3 data-bbox="500 380 878 415">Bottom Bind: Slabbing Out</h3> <p data-bbox="500 443 565 478">Say:</p> <p data-bbox="500 506 1414 730">You may intuitively choose to tackle a log with a bottom bind with a straight down cut because the kerf will naturally open as the saw progresses through the log. However, on a log with a significant bottom bind, this will often result in slabbing out, if you do not cut the compression first. Slabbing out refers to the cut piece of a log (the slab) falling away with the crosscut saw still engaged in the tree.</p> <p data-bbox="500 751 1024 787">This can be problematic for two reasons:</p> <ol data-bbox="548 808 1398 1039" style="list-style-type: none">1. If the log slabs and the saw stays connected, the log may roll sideways enough to pinch the saw in the kerf. Even if you can remove the saw, finishing the cut in this circumstance can be difficult.2. If the slab breaks away from the log, a rolling log may grab the saw and pull it out of your hands. <p data-bbox="500 1060 1393 1129">When severing a log with a bottom bind, you will most often use two cuts in tandem</p> <ol data-bbox="548 1150 1393 1388" style="list-style-type: none">1. Make the first cut from the bottom (bind) side and sever a minimal amount of wood fiber. The depth of this first kerf is typically only 1 to 3 inches and is commonly referred to as cutting the lazy strap, because a lazy sawyer will not cut it.2. Make the second cut (which aligns with the first cut) from the top, which causes the log to break cleanly. <p data-bbox="500 1398 711 1430">DISPLAY NEXT SLIDE</p>

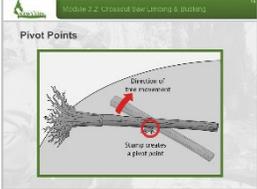
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Slide/action	Content
<p data-bbox="240 380 435 405"><i>Slide 18: Side Bind</i></p>  <p data-bbox="224 436 279 449">Side Binds</p>	<p data-bbox="500 380 630 405">Side Bind</p> <p data-bbox="500 436 565 470">Say:</p> <p data-bbox="500 499 1406 680">In a side bind, tension is exerted sideways on the log. 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.</p> <p data-bbox="500 709 704 735">INSTRUCTOR NOTE</p> <p data-bbox="500 768 1409 835">Discuss the example in the image and any relative experience you may have.</p> <p data-bbox="500 869 711 894">DISPLAY NEXT SLIDE</p>
<p data-bbox="240 957 435 982"><i>Slide 19: End Bind</i></p>  <p data-bbox="224 1014 279 1026">End Bind</p> <p data-bbox="354 1060 412 1081">Weight causes compression.</p>	<p data-bbox="500 957 630 982">End Bind</p> <p data-bbox="500 1014 565 1047">Say:</p> <p data-bbox="500 1077 1409 1341">In an end bind, weight compresses the entire cross section of the log. Here, there is potential for the kerf to close with any cut that 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.</p> <p data-bbox="500 1371 704 1396">INSTRUCTOR NOTE</p> <p data-bbox="500 1430 1409 1497">Discuss the example in the image and any relative experience you may have.</p> <p data-bbox="500 1530 711 1556">DISPLAY NEXT SLIDE</p>

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Slide/action	Content
<p data-bbox="224 380 451 405"><i>Slide 20: Pivot Points</i></p> 	<h3 data-bbox="500 380 667 405">Pivot Points</h3> <p data-bbox="500 436 565 470">Say:</p> <p data-bbox="500 506 1409 646">Pivot points are ground features, such as stumps, rocks, and logs, that may cause a bucked log to react in an unexpected manner. Most often these are encountered while bucking and can be dangerous if they are not recognized beforehand.</p> <p data-bbox="500 678 1369 743">An unnoticed pivot point may cause one end of a log to roll or shift. Injury can result if you do not see or plan for log movement.</p> <p data-bbox="500 779 704 804">INSTRUCTOR NOTE</p> <p data-bbox="500 835 1409 900">Discuss the example in the image and any relative experience you may have.</p> <p data-bbox="500 932 708 957">DISPLAY NEXT SLIDE</p>
<p data-bbox="240 1003 435 1029"><i>Slide 21: Cut Plan</i></p> 	<h3 data-bbox="500 1003 618 1029">Cut Plan</h3> <p data-bbox="500 1060 565 1094">Say:</p> <p data-bbox="500 1125 1385 1381">Form your cut plan with efficiency in mind. Most logs must be cut twice to reach the objective. There is usually one side that will make the cutting operation easier if you start with that cut first. Assess the current binds of the log. Consider what will happen when you sever either side of the log first. Will the second cut be easier or harder to make after the first? The goal is to cut from the top down twice as underbucking is more difficult and is not as efficient.</p>

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Slide/action	Content
	<p>A cut plan includes:</p> <ul style="list-style-type: none">▪ Use of wedges▪ Number of sawyers▪ Location(s) of sawyer(s)▪ Necessary tools▪ Best saw for the operation▪ Hazard mitigation▪ Limbing as necessary▪ A plan to move the log into its objective (roll, levers, flip, drag)▪ Order of cuts▪ Best saw for operation <p>DISPLAY NEXT SLIDE</p>
<p><i>Slide 22: Types of Cuts</i></p>  A photograph of a sawyer in a yellow jacket and hard hat, standing in a wooded area. The sawyer is holding a crosscut saw. The text "Types of Cuts" is overlaid on the bottom right of the image.	<h3>Types of Cuts</h3> <p>Say:</p> <p>There are four basic types of cuts we use in bucking operations with traditional tools—straight cut, compound cut, offset cut, and chopped cut (using an ax to chop through the log).</p> <p>DISPLAY NEXT SLIDE</p>
<p><i>Slide 23: Straight Cut</i></p>  A diagram of a log with a straight cut. The text "Straight Cut" is at the top. Below it, a checkbox is followed by the text "One kerf cut from one side to completely sever". The diagram shows a log with a single vertical cut line through its center. Labels "Compound Cut" and "Straight Cut" are visible on the log.	<h3>Straight Cut</h3> <p>Say:</p> <p>A straight cut is one kerf cut from one side of the limb that completely severs the limb. Sawyers most often use this cut when binds are minimal and easily observed.</p> <p>DISPLAY NEXT SLIDE</p>

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Slide/action	Content
<p><i>Slide 24: Compound Cut</i></p> 	<h3>Compound Cut</h3> <p>Say:</p> <p>A compound cut consists of two angled cuts that facilitate log rollout. The severed log is widest towards the direction of intended log removal. Sawyers typically use this cut when clearing a large log that is across a trail or fireline. The sawyer or saw team must make two compound cuts, and the severed chunk of the log will then roll to its desired objective. This reduces the chance that the log will bind when you roll it out of the way.</p> <p>DISPLAY NEXT SLIDE</p>
<p><i>Slide 25: Offset Cut</i></p> 	<h3>Offset Cut</h3> <p>Say:</p> <p>An offset cut is when a sawyer places a top cut and a bottom cut so that the two cuts do not match up exactly. You would use this kind of bucking operation when a log has top bind and only one side will fall to the ground.</p> <p>Once you have made the top cut on the compression side to a depth where the saw starts to pinch, select an underbucking location about half an inch to the side of the top cut and on the side of the log that will not drop to the ground.</p> <p>DISPLAY NEXT SLIDE</p>
<p><i>Slide 26: Chopped Cut</i></p> 	<h3>Chopped Cut</h3> <p>Say:</p> <p>A chopped cut is made with an ax. With practice, you can chop through most smaller trees with an ax in about the same time as you can cut through them with a crosscut saw. You may use a chopped cut when binds prohibit sawing or when encountering any circumstances where employing the length and size of a crosscut saw may be impractical due to terrain, space, or brush, etc.</p> <p>DISPLAY NEXT SLIDE</p>

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Slide/action	Content
<p><i>Slide 27: Saw Protection</i></p>  <p>Saw Protection</p> <ul style="list-style-type: none">□ To mitigate potential damage to your saw:<ul style="list-style-type: none">• Remove rocks and dirt under the log• Dig under the log and place bark or other soft material• Potentially use a single buck operation or handsaw to finish the cut	<h3>Saw Protection</h3> <p>Say:</p> <p>Often as you sever the last bit of wood on a top-down cut, the saw naturally drops a few inches. If there is anything below the saw, it could damage the saw. Be sure to remove rocks and dirt under the log that could dull the saw. Try to dig under the log and place bark or other soft material there to protect the saw when you finish the cut. Remove all vegetation from the path of the saw.</p> <p>When a log rests on or is close to the ground, you may choose to finish cutting the tree with a single-buck operation or even use a handsaw to keep the crosscut saw in good working order. Single bucking with just the tip of a saw allows you to use shorter strokes where the saw only contacts the wood rather than using longer strokes and inevitably sawing some soil into the cut.</p> <p>DISPLAY NEXT SLIDE</p>
<p><i>Slide 28: Other Considerations</i></p>  <p>Other Considerations</p> <ul style="list-style-type: none">□ Bark removal□ Tool placement□ Escalating a work platform□ Wedging□ Finished Saw<ul style="list-style-type: none">• All sawyers will eventually get a saw and be asked to remove it from the site. When that happens, consider:<ul style="list-style-type: none">• Wedging under the handle• Digging under the saw and to lift the top or bottom edge of the bar and remove the saw• Using a shovel to dig under the saw if there is a cut in the ground to remove the saw• Using wedges for high or low and the ground is not firm enough to use the saw	<h3>Other Considerations</h3> <p>Say:</p> <h4>Bark Removal</h4> <p>Bark on logs can contain sand, dirt, and small rocks (from dust storms, erosion, and landslides) that can dull the saw. This is most common in logs with thick and furrowed bark. Fire-charred logs also dull saws. In these situations, most crosscut sawyers remove the bark with an ax before they start cutting. In addition, bark is spongy and can reduce the effectiveness of wedges. Remove bark when it has the potential to dull the saw or negatively affect wedging.</p> <p>You can reuse the removed bark. On trees that are hovering close to the ground, use peeled bark to help buffer the ground where a saw could drop after you complete the cut. This will protect the teeth of the saw.</p>

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Slide/action	Content
	<p><i>Tool Placement</i></p> <p>The saw team should talk through wedge and ax placement so you can easily and safely access them during the cutting process. Do not place tools on top of logs where they may fall on a sawyer.</p> <p><i>Establishing a Work Platform</i></p> <p>Because crosscut sawing requires good balance, you need a level platform under your feet. Remove logs, branches, brush, and other vegetation. If necessary, use a digging tool to create footholds on steep ground.</p> <p><i>Wedging</i></p> <p>Wedge placement in bucking is not a thoughtless process of just trying to keep the kerf opened. When dealing with severe top bind, placing two or more wedges parallel to each other on the top of the kerf will afford you the most opening power. As you pound one wedge in, the other wedge or wedges become loose in the kerf. Then, you can pound the other wedges deeper, slowly opening the kerf. This method allows you to top-down buck logs.</p> <p>We will discuss wedging in more detail in Module 6: Wedges.</p> <p><i>Pinched Saw</i></p> <p>All sawyers will inevitably pinch a saw and be unable to remove it from the kerf. If this happens, consider:</p> <ul style="list-style-type: none">• Wedging more aggressively• Using a small tree as a lever to lift the log so you can open the kerf and remove the saw• Using a different saw or ax to buck the tree in a different location to alleviate the bind• Using wedges if a log is on or near the ground to lift the log enough to free the saw <p>We will discuss wedging in more detail in Module 6: Wedges.</p> <p>DISPLAY NEXT SLIDE</p>

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Module 3.2: Crosscut Saw Limbing and Bucking

Slide/action	Content
<p data-bbox="207 373 462 403"><i>Slide 29: Underbucking</i></p> 	<h3 data-bbox="500 373 690 403">Underbucking</h3> <p data-bbox="500 436 560 466">Say:</p> <p data-bbox="500 499 1388 571">One more thing to consider is underbucking. Underbucking is sawing from the bottom of a log upward toward the top. You can do it:</p> <ul data-bbox="548 592 1039 703" style="list-style-type: none">▪ By hand▪ Using a mechanical underbucker▪ With an ax handle to support the saw <p data-bbox="500 730 1380 835">Because of the added physical difficulty of underbucking with a crosscut saw, most crosscut sawyers agree that it is best to avoid underbucking. Ways to avoid underbucking with a crosscut saw are:</p> <ul data-bbox="548 856 1388 1012" style="list-style-type: none">▪ Buck the log with an ax.▪ Underbuck with a handsaw.▪ Cut top down with a crosscut saw and wedge aggressively.▪ Use a lever to lift the underside of the log, thus alleviating top bind. <p data-bbox="500 1033 1404 1102">Even with all those options, there are still times that underbucking with a crosscut saw will be the most efficient method to clear the trail.</p> <p data-bbox="500 1123 1364 1197">You will learn more about how to plan and complete underbucking when you practice in the field later during training.</p> <p data-bbox="500 1218 1404 1444">Some sawyers underbuck freehand, while others prefer to use an underbucking tool (underbucker) or an ax to assist with the process. If using an ax or underbucker, first determine which side of the severed log would remain the most stationary and use that side as the anchor point for the underbuck. If the log moves, it could damage the mechanical underbucker or the ax.</p> <p data-bbox="500 1465 1412 1659">When using an ax to support the underbucking saw, plant the ax in the log and use the handle as a support for the back of the saw. Strike the ax so the handle remains at about a 30-degree angle to the tree. This is the optimal angle to support the saw and still give you working space. Place the back of the inverted saw in the underbuck groove.</p>

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Slide/action	Content
<p data-bbox="203 835 470 898"><i>Slide 30: Video: Crosscut Saw Bucking</i></p> 	<p data-bbox="496 380 1398 642">The saw typically starts at an angle of about 45 degrees from horizontal. With your guiding hand holding the back of the saw, apply light, downward pressure on the underbucker or ax handle and push the saw forward. Pressure on the underbucker must be consistent on the push and pull strokes. Oil in the underbuck groove of the ax handle will help the saw run easily and will reduce wear on the ax handle.</p> <p data-bbox="496 674 1373 743">You can use a single-bit ax to pound a mechanical underbucker into the log.</p> <p data-bbox="496 768 708 793">DISPLAY NEXT SLIDE</p> <p data-bbox="496 835 906 871">Video: Crosscut Saw Bucking</p> <p data-bbox="496 898 561 934">Say:</p> <p data-bbox="496 957 1373 1031">This video provides an excellent visual of what we have discussed in this module and will tie everything together that you just learned.</p> <p data-bbox="496 1056 667 1081">PLAY THE VIDEO</p> <p data-bbox="496 1104 699 1140"><i>Video Debrief</i></p> <p data-bbox="496 1163 1195 1194">Ask and answer any questions the students may have.</p> <p data-bbox="496 1220 708 1245">DISPLAY NEXT SLIDE</p>

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Module 3.2: Crosscut Saw Limbing and Bucking

Slide 31: Knowledge Check



Knowledge Check

Give students a few moments to answer the questions in the student guide, then discuss the answers.

Q: What good communication points should a saw team discuss prior to beginning a bucking cut?

A: Answers should include:

- The height and reach of the two sawyers given slope, log diameter, etc.
- How you will start and complete the cut
- The safe locations to start or finish in
- If one or two sawyers will need to finish the cut
- Cutting area control
- If and when to use a wedge
- The type of cut to use
- A check of the sawyer's footing
- If there is any need for underbucking

Q: What are three considerations for safe bucking?

A: Answers can include:

- The stability of the log
- The location of pivot points
- The compression/tension of fiber
- The steepness of the slope
- Any adjacent resources (especially downhill or working above)
- Safe sawyer position/quadrants

Q: What are three considerations for safe limbing?

A: Answers could include:

- The location and presence of spring poles
- The location and presence of hazards
- The intended lay
- The location of the escape path
- The cutting sequence/plan
- The type of tree fiber
- The best type of tool to use

DISPLAY NEXT SLIDE

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Slide/action	Content
<p><i>Slide 32: Summary</i></p> 	<p>Summary</p> <p>Review</p> <p>Review the summary objectives listed on the slide.</p> <p>DISPLAY NEXT SLIDE</p>
<p><i>Slide 33: Questions?</i></p> 	<p>Questions</p> <p>Ask:</p> <p>Do you have any questions about crosscut saw limbing and bucking?</p>

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Developing Thinking Sawyers**

Module 3.2: Crosscut Saw Limbing and Bucking

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