Saw Training For Volunteer Sawyers

Bucking Only

March 2016

Course Overview

- Saw Safety Course
  - For Trainee Saw Operators and Saw Operators

Saw Certification Training

- Bind Analysis and Cutting Sequence
  - For Trainee Saw Operators and Saw Operators
- Crosscut Saw Specific Training
  - For Crosscut Trainee Saw Operators and Saw Operators
- Chain Saw Specific Training
  - For Chain Saw Trainee Saw Operators and Saw Operators

Safety Course Overview

- Saw Program
- Safety Requirements
- Situational Awareness
- Case Study with Lessons Learned

Memorandum of Understanding

2009 MOU page 13, item 1, PCTA shall:

"Provide chain and crosscut saw operator safety training, certification and recertification opportunities using PCTA affiliated instructor/certifiers and instructors to meet the needs of the PCTA volunteers and staff to the fullest extent possible."

Sawyer Certification Levels

Trainee Saw Operator

- 1 year card
- Must be supervised during all cutting projects

Saw Operator

- 2 year card
- May work without supervision
- Supervises Trainee Saw Operators

Volunteer Saw Instructor-in-Training

- Assists in training events

Volunteer Saw Instructor (VSI)

- Trains and evaluate Trainee and Saw Operators

Saw Crew Leader

- Each saw crew needs a lead sawyer
  - Must be Saw Operator or VSI certified sawyer
  - Determined prior to project
  - Responsible for:
    - Correct equipment for the job, including PPE and First Aid Kit
    - Confirm with crew leader the EAP and TCP are completed
    - Assign work to swampers and lead each cutting operation
- There may be 2 or 3 saw crews, each with a saw crew leader, who all work under the organization of the trail crew leader
- Trail crew leader responsible for JHA, TCP and EAP

Supervision

- Responsibilities of Saw Operator Supervising Trainee Saw Operator
  - Direct Supervision of Trainee Saw Operator during cutting operation
  - Ensures Trainee Saw Operator works within skill level and safely addresses hazards
  - Provides useful tips and reviews cutting operation to allow Trainee Saw Operator to learn from experience
  - Keeps Saw Crew Safe

Safety Requirements

Saw crew leaders must be sure that all of the following are covered before beginning a project:

1. PPE
2. First Aid & CPR
3. JHAs
4. Trailhead Communication Plan
5. Emergency Action Plan

Personal Protective Equipment (PPE)

Crosscut *(All equipment must meet USFS standards)*

Hard Hat	Full brim or cap style
Eye Protection	Safety glasses or shield when chopping or driving wedges
Hearing Protection	Not Required
Long-sleeve Shirt	Recommended
Gloves	Slip-resistant, appropriate for the weather conditions Cut-resistant, when filing
Trousers	Loose fitting
Boots	Heavy-duty, cut resistant or leather, laced, with nonskid soles and adequate ankle support
First Aid	OHSA-compliant kit, one with each saw crew

Personal Protective Equipment (PPE)

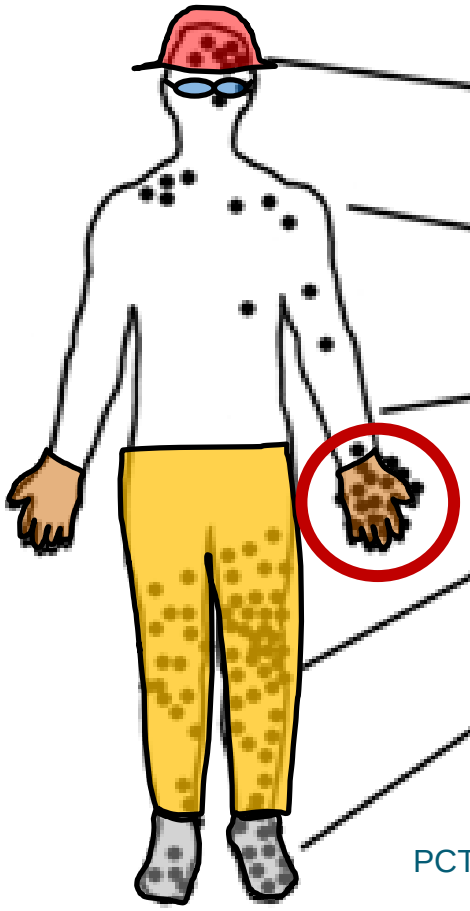
Chain saw (All equipment must meet USFS standards)

Hard Hat	Full brim or cap style
Eye Protection	Safety glasses, goggles or shield
Hearing Protection	Plugs or muffs
Long-sleeve Shirt	Required at all times
Gloves	Slip-resistant, appropriate for the weather conditions Cut-resistant, when filing
Trousers	Loose fitting
Boots	Heavy-duty, cut resistant or leather, 8 inch-high, laced, with nonskid soles and adequate ankle support
First Aid	OHSA-compliant kit, one with each saw crew

Chain Saw Chaps

- Must overlap boots at least 2 inches
- Use only clean saw chaps (uncut and undamaged by oils and solvents)
- They must meet the current USFS or ASTM specifications

Chain Saw Injury Location & Frequency



Head injuries	3,418
Upper body area	2,141
Arm and hand area	17,994
Leg area	16,348
Foot area	2,885

Consumer Product Safety Commission, 1994

First Aid Kit

- OHSA-compliant
  - Two large gauze pads (at least 8 x 10 inches)
  - Two elastic wraps
- PCTA Injury Info Packet

Job Hazard Analysis (JHA)

www.pcta.org/volunteer/crew-leader-center

Scroll down to "Job Hazard Analysis (JHA)"

- May need one or more JHA
- Check with your PCTA Regional Rep to confirm version
- Review and highlight the main points
- Note weather and other special conditions
- Everyone must sign the back page
- Mail with the PCTA Project Report to Sacramento

Safety Requirements Review

1. PPE
2. First Aid & CPR
3. JHAs
4. Trailhead Communication Plan
5. Emergency Action Plan

Situational Awareness

Bucking: Go or No Go

Hazards	Binds
Overhead	Top
Up slope	Bottom
Down slope	Side
Both sides	End
Pivots	Multiple
Snags	

Foreign objects on or under logs?

PACIFIC CREST TRAIL ASSOCIATION

Do you have your safety gear on?

v. February 2014

Considerations

- People, property & traffic in work area
- Work party safety
- Safe work area
- Good escape routes
- First cut locations
- Release spring poles
- Cut piece track
- Leave a secure work area

Yourself:
What is your gut intuition telling? Does this cut make sense?

You must safely address every item on this list or WALK AWAY!

People, Property and Traffic

- Control of the Work Area
  - Stopping traffic on the trail
  - Control of switchbacks below the work area
- Considerations for Cut Piece Track
  - Controlled release of cuts
  - Safe cut piece track downhill of work area

Work Party Safety

- Can you Guarantee the Crew Safety?
- Environmental Conditions
- Crew Considerations
  - Tired and Fatigued?
  - Thirsty, Hungry, Hot, Cold?
  - Ample Daylight?
  - Too Eager?
- Safe Area for Crew during Cutting Operation?

Environmental Conditions

- **Wind:** Pinecones and small branches falling - 15 mph boogey
- **Ice:** NO GO on sloped work-site
- **Rain:** Is it too slippery?
- **Heat:** Will heat prevent completion of project?
- **Light:** Is there enough light to finish the project and clean up?

Constantly reassess throughout the day

Situational Hazard Awareness

- Environmental conditions
- Overhead survey
- Ground survey
- Site prep
- Crew and equipment
- Cut analysis and plan

Overhead Hazard Survey

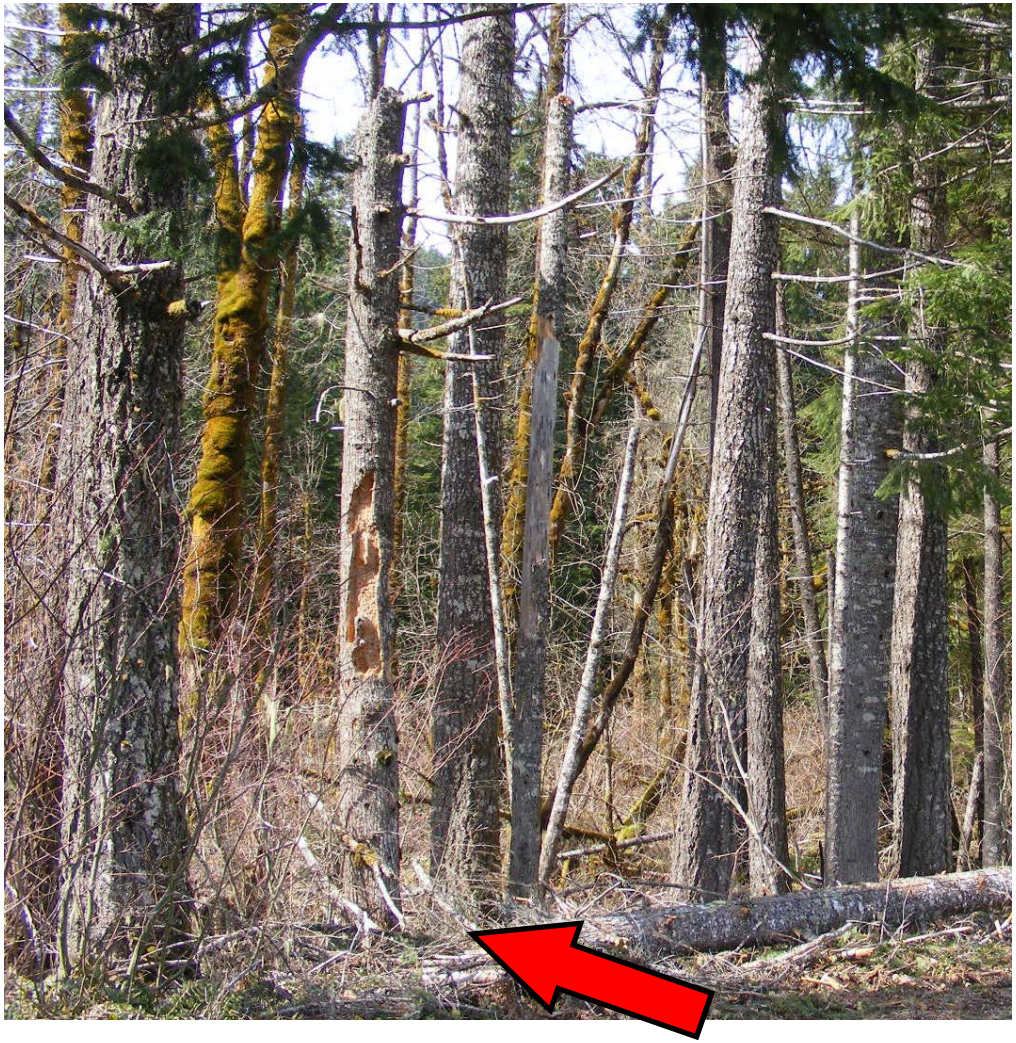
Look at all the standing timber to determine its condition

Check for:

- ✓ Snags
- ✓ Leaners
- ✓ Loose Limbs
- ✓ Loose Bark
- ✓ Feeding Holes
- ✓ Insect Activity
- ✓ Conks and Mushrooms
- ✓ Shelf or Bracket Fungi
- ✓ Sap Rot

Can the wind or your work cause these hazards to fall and harm you, your crew, hikers or equestrians?

Hazards: Snags



Can the cut piece travel where it could hit a snag?

Hazards: Sap Rot Indicators

Ground Hazard Survey

Walk the length of the log

Look for:

- Spring poles
- Bearing points
- Pivot points
- Rootwad
- Up slope
- Down slope
- Both sides
- Foreign objects on or under log

Hazards: Spring Poles

Hazards: Spring Poles

(Wildland Fire Chain Saws, S-212 Video, National Wildfire Coordinating Group)

Hazards: Blow Downs

(Wildland Fire Chain Saws, S-212 Video, National Wildfire Coordinating Group)

Safe Working Area

- Establish Escape Route
- Stabilize Work Area for solid footing
- Prepare work site
  - Remove hazards
  - Brush out and limb work area and escape route
  - Remove tripping hazards
- Prepare Cut track routes
- Establish safe areas for crew
- Control traffic on the trail – especially switchbacks
- Secure area around root wad

Hazard Mitigation

- Overhead Survey – Look for snags and hanging limbs
- Ground Survey – Walk the length of the log
- Identify spring poles and brush
- Establish binds
- Determine cutting sequence
- Determine how the binds will change thru cutting sequence
- Determine movement of cut pieces
- Establish Escape Routes and safe areas for crew
- Announce Plan and Review if things change from plan

Hazard Mitigation

Hazard Ranking Guideline

Log Diameter	16" and under	24" and under	Above 24"
Side Bind	Mild	Moderate	Severe
Top/Bottom/End Bind	Mild	Moderate	Severe
Slope	Level	10%	Above 10%
Single Log	On Ground	3' above Ground	Over 3' in the air
Stacked Logs	On Ground	Suspended	On Slope
Other hazards	None	Pivots, Root Wads, not affected by cutting sequence	Root Wads, Pivots, other hazards

Site Preparation

- Remove branches
- Remove debris from tread
- Remove spring poles
- Remove bark (crosscut)
- Prep bucking location
- Support aids, if needed

Site Preparation

Ensure stable footing – may need to create bench in slope

Site Preparation

Clear out underneath log

Site Preparation - Support Aids

Use supports (rails) and mechanical leverage to move logs

Site Preparation - Support Aids

Use mechanical leverage wisely – lift with legs

Site Preparation - Support Aids

Plan before you cut – how much do you need to cut?

Site Preparation - Support Aids

Plan before you cut - where to put the cut piece ?

Site Preparation - Support Aids

Proper planning allowed for 2 cuts to clear the entire log

Site Preparation - Support Aids

Support cut pieces and add rails to roll cut pieces off trail

Site Preparation - Support Aids

Build cribbing to support cut pieces or to change binds

Crew & Equipment Considerations

- Do you have the right crew for the job?
- Do you have the proper safety equipment?
- Do you have enough gear? The right gear?
- Do you have enough people to keep trail users clear of the work area?

Don't Start a Project Without the Right Stuff!

Cut Analysis & Plan

- Bind Evaluation and Mitigation
- Action Plan
  - Site preparation
  - Crew assignments
  - Crew communication
  - Cut sequence
  - Cut piece track
  - Cut design
  - Escape routes

Before the Saw Touches the Wood…

Bucking: Go or No Go

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Up slope	Bottom
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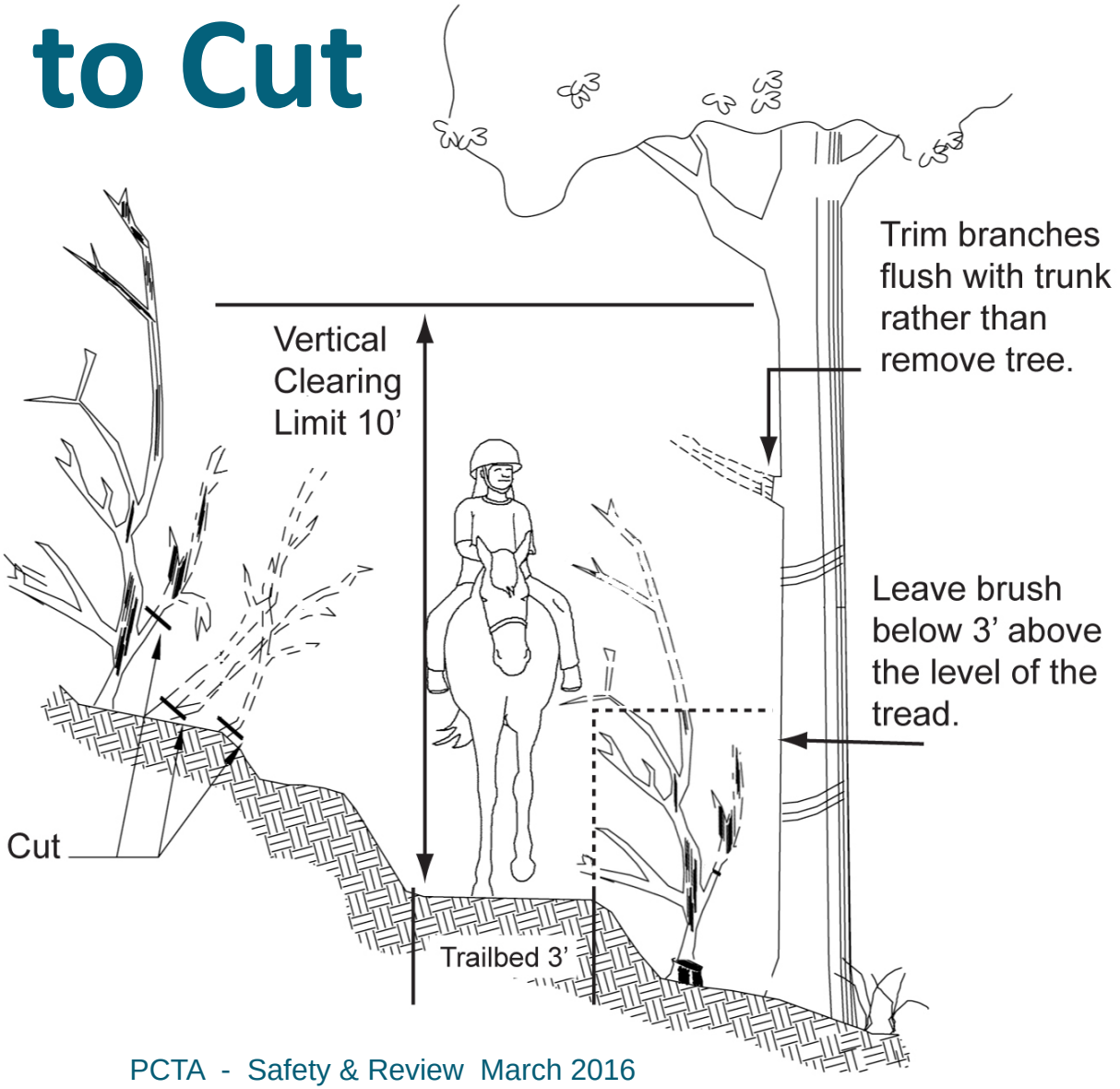
Situational Hazard Awareness

- Environmental conditions
- Overhead survey
- Ground survey
- Site prep
- Crew and equipment
- Cut analysis and plan

Bucking Only

Which one of these would you or should you cut?

Where to Cut


Trim branches flush with trunk rather than remove tree.
Vertical Clearing Limit 10’
Leave brush below 3’ above the level of the tread.
Cut
Trailbed 3’

Leaving the Project Site

- ✓ Is everything secure?
- ✓ Do you have all tools?
- ✓ Is the tread restored?
- ✓ Is the setting restored?

If there is any dangerous condition that you are unable to correct…

If it is a hazard to normal hiker or equestrian safety…

Flag It!

Inform Land Manager As Soon As Possible

- ✓ Note location
- ✓ Condition details
- ✓ Equipment needed
- ✓ Forest condition
- ✓ Landscape conditions

Industrial Fire Precaution

Fire prevention requirement based on fire risks

- Fire Extinguisher (0.5 or 1lb) & Shovel/Combi Tool
- Higher Levels of restriction require cutting operations cease at prescribe time (often 1 pm)
- Watchman – may need to post watch after cutting is completed (1 hour to 3 hour watch)
- Highest fire danger can result in no chainsaw operations allowed – (consider use of crosscut saw)

Contact Land Manager for Local Requirements and information on where restrictions are posted

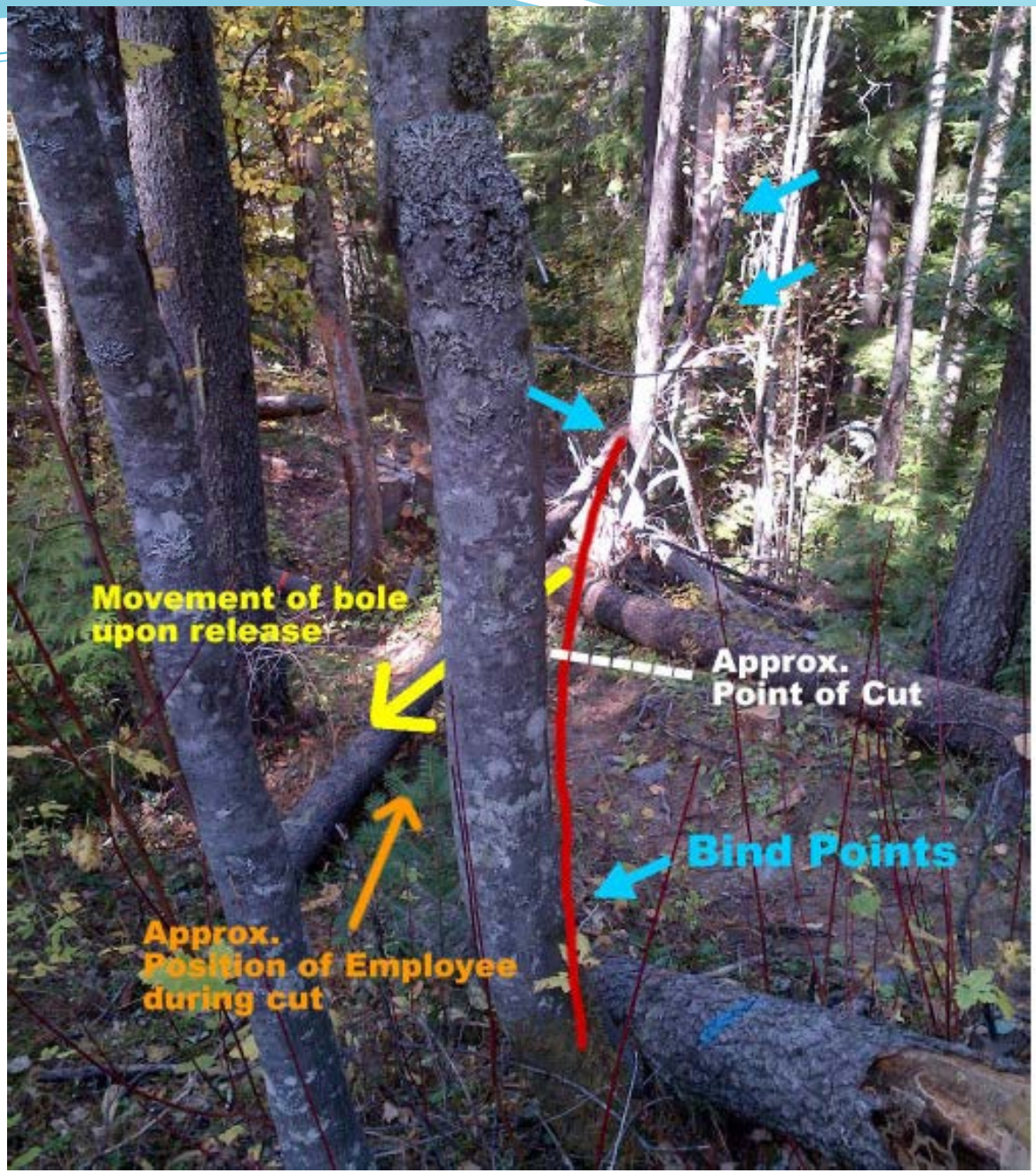
Lessons Learned

Review of 2014 Accidents

Lodgepole Bucking Injury Accident

Lodgepole Bucking Injury

- Bucking injury associated with felling operation, but pertinent to our trail work
- C-Cert sawyer had felled 8" lodgepole pine and then concentrated on felling 24" Western Larch
- Operations were late in the afternoon, after long day
- Sawyer didn't evaluate the lodgepole and began bucking cuts without recognizing the lodgepole was under intense side bind
- Sawyer was standing in the wrong location and when the log released, the log impacted and broke his leg, throwing sawyer onto running saw


Movement of bole upon release
Approx. Point of Cut
Bind Points
Approx. Position of Employee during cut

Lodgepole Bucking Injury

- Lessons Learned:
  - The log was only 8" in diameter. **Small logs can injure and kill – Don't underestimate them!**
  - Although there were two sawyers, they were working independently with no swampers and one first aid kit. **PCTA sawyers never work alone and requires each saw crew have a first aid kit!**
  - Injured sawyer was an experienced "C" level feller-bucker. **This can happen to anyone!**
  - If the full length of the log had been examined, the sidebind would have been obvious. **Never buck a log without performing a thorough size-up!**

Lodgepole Bucking Injury

- Lessons Learned:
  - The accident occurred late in the shift.
    Fatigue may have been an issue.
  - In addition to the broken leg resulting from the springback, the sawyer experienced severe cuts on his left wrist and forearm and the chainsaw was still running.
    Keep the left thumb firmly wrapped around the handle of the saw to ensure the chain brake is activated.
  - Sawyer may have been "target-focused" on the larger tree and didn't focus on the lodgepole and the hazards
    Keep focused on the task at hand and always assess risks.

Case Study
Lessons Learned

Summary of relevant known incidents and accidents

Course Review

- Saw Program
- Safety Requirements
- Situational Awareness
- Case Study with Lessons Learned

Break Time