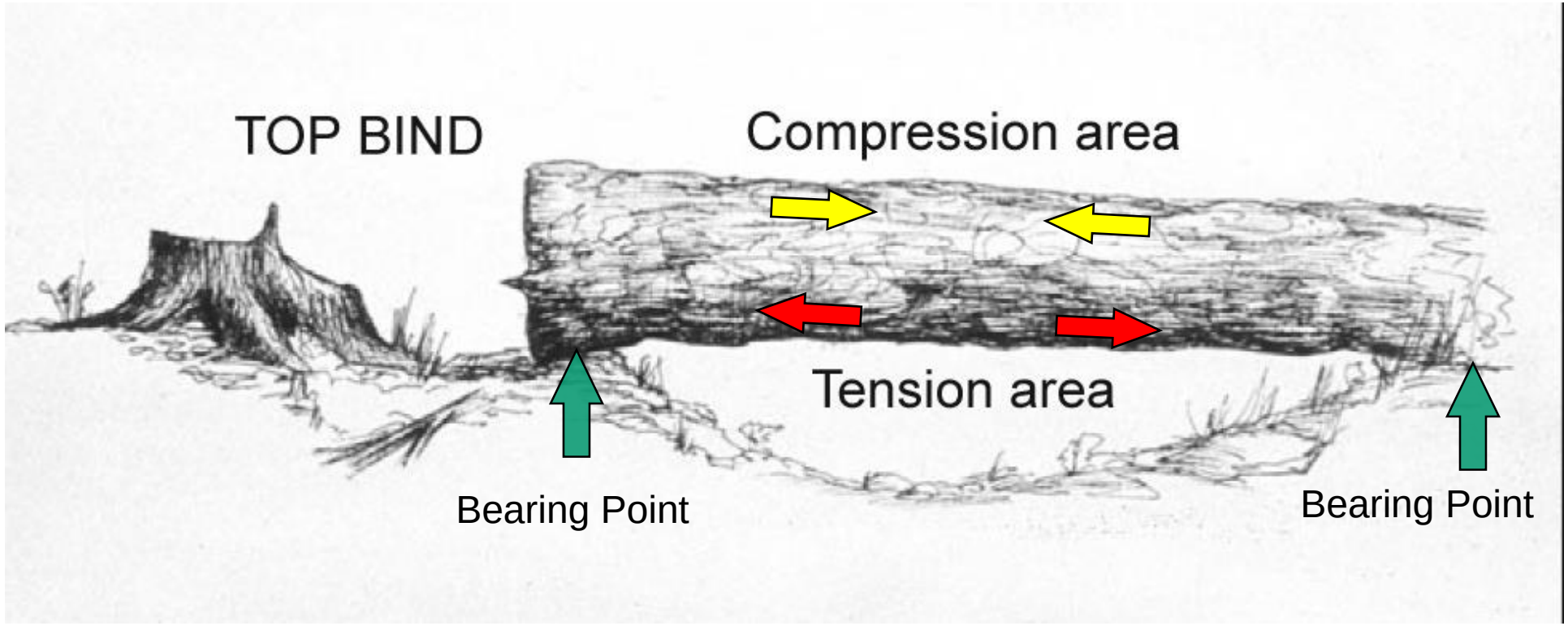
Pacific Crest Trail Association

Bind Analysis & Cutting

Types of Binds

- Top
- Bottom
- Side
- End
- Compound

Top Bind



Top cut and finish from bottom, add pie cut if needed

Top Bind

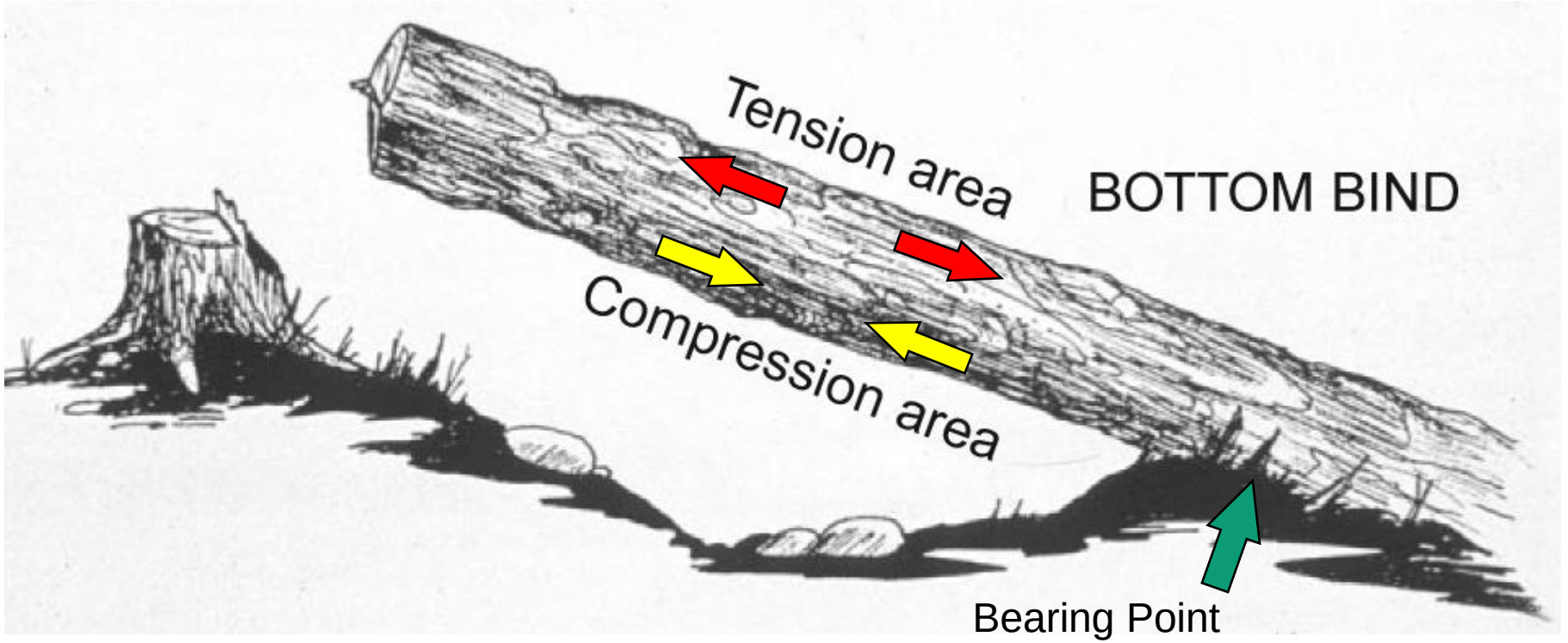
Top cut

Top Bind

Cut from Top and Wedge

Top Bind Video

Bottom Bind



Underbuck, then top cut. Be ready for lots of movement.

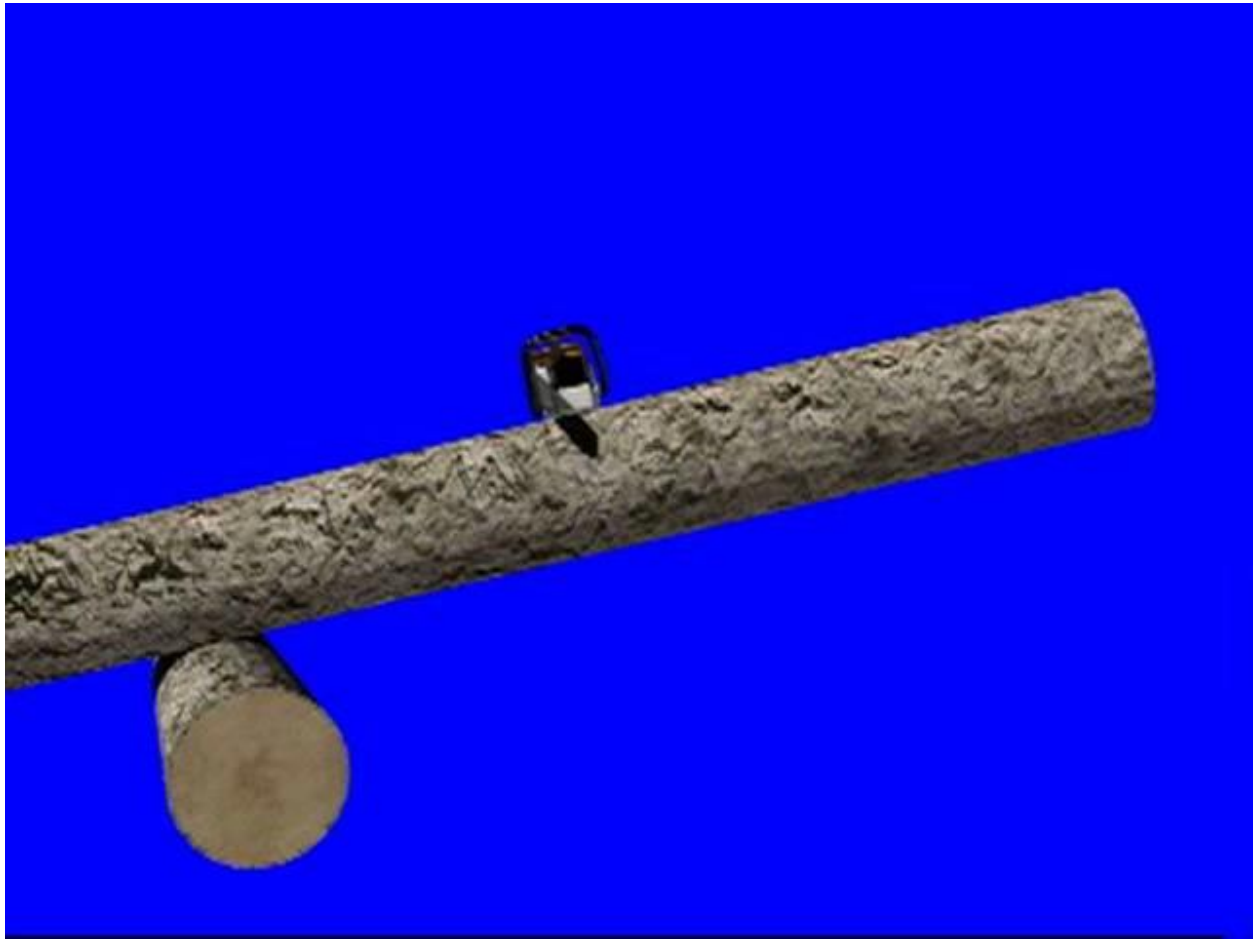
Bottom Bind

When possible cut at bearing point

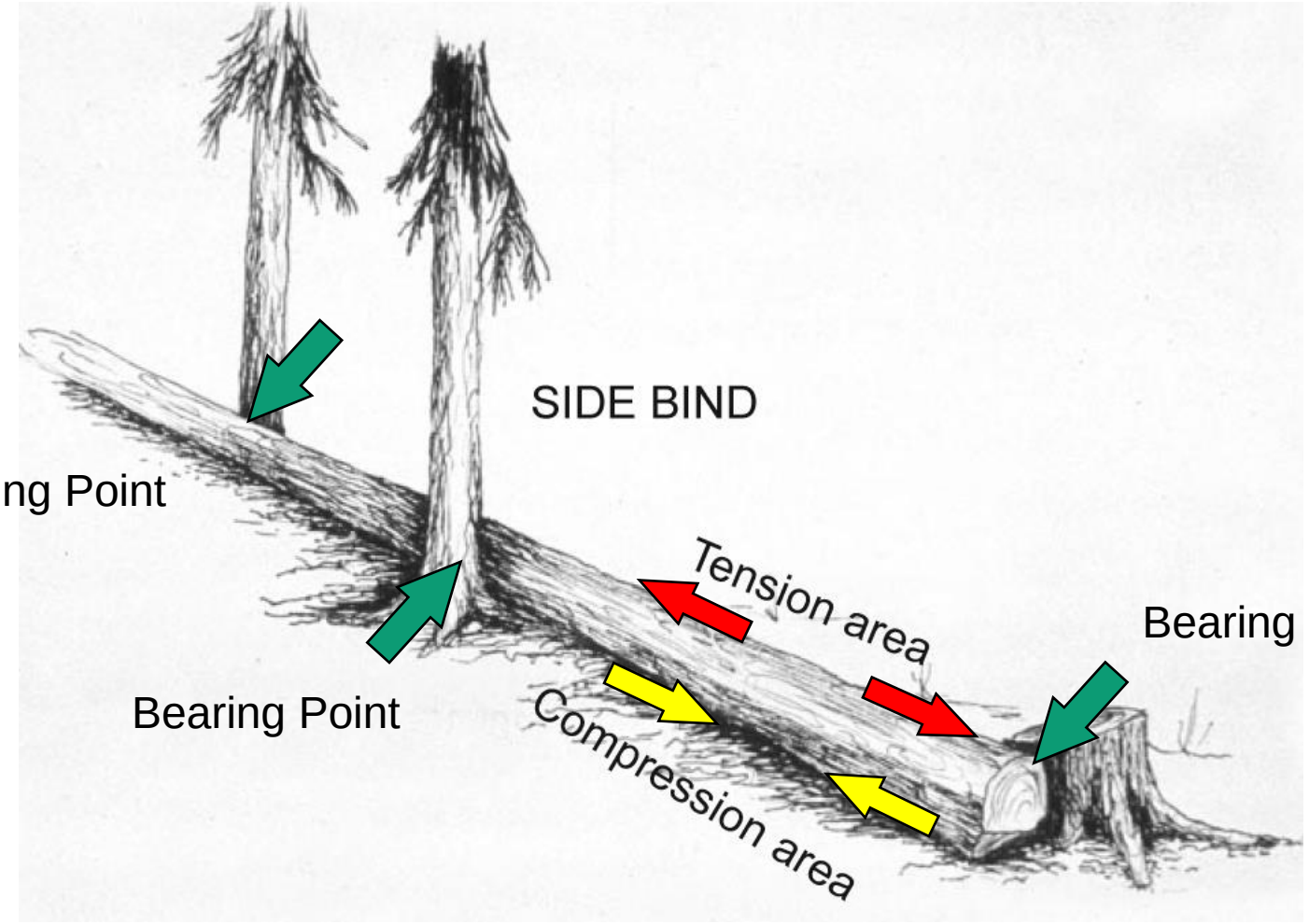
Bottom Bind

Watch kerf as it opens during release cut

Bottom Bind Video



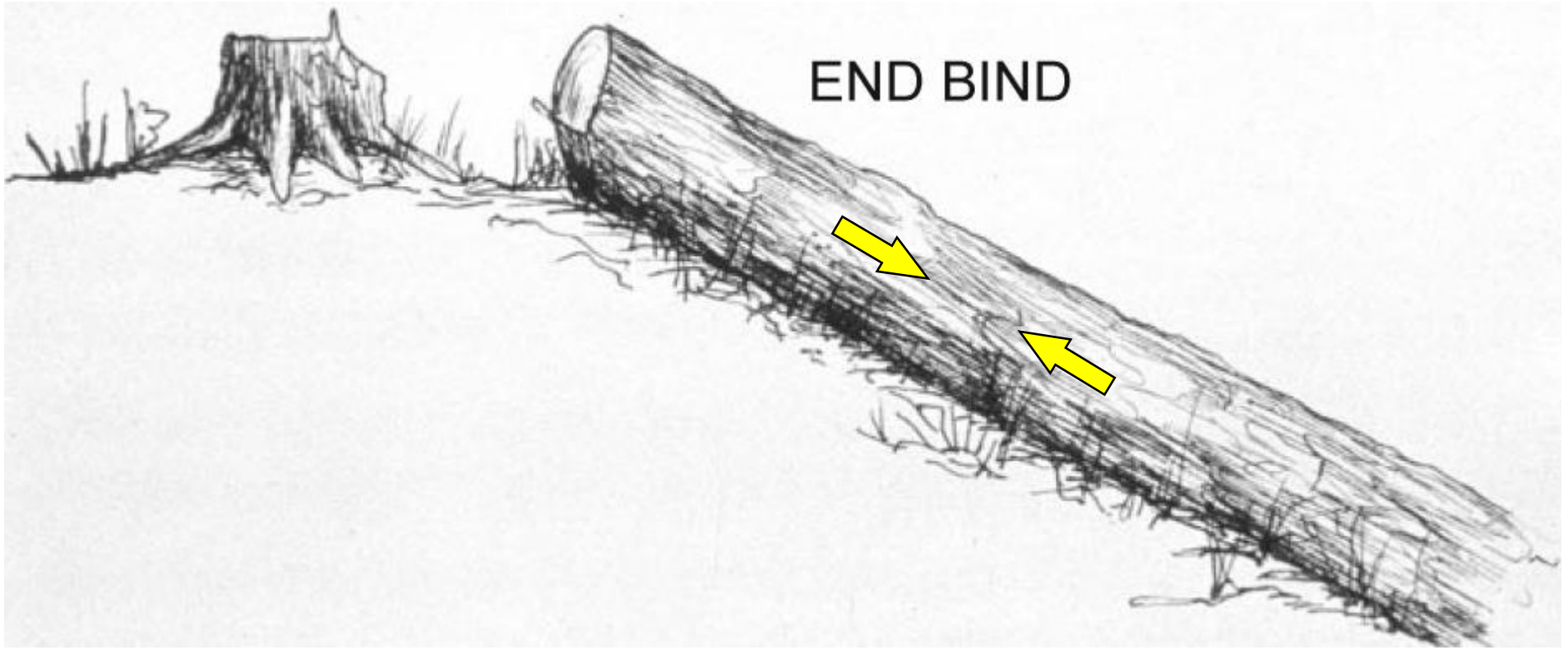
Side Bind



Safely relieve bind on compression side

Side Bind Video

End Bind



Use wedges to offset compressive forces from weight of log

End Bind Video

End Bind

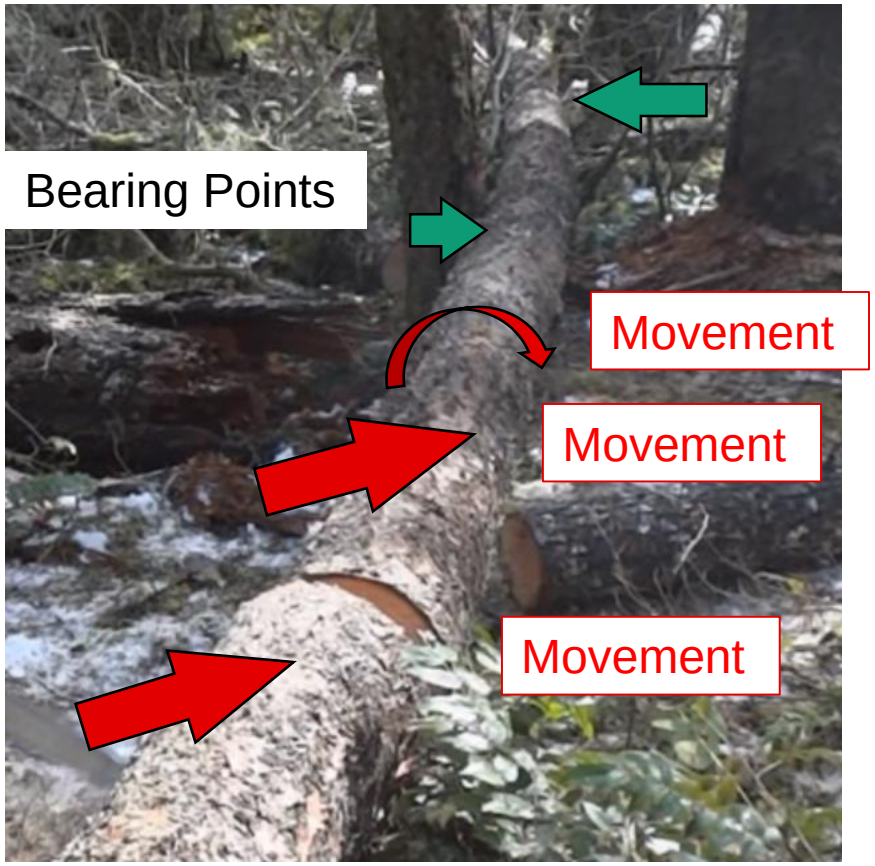
Use wedges to offset compressive forces from weight of log

Compound Binds

- Combination of two or more binds
- Can move and change during the cutting process
  - Cutting the log reduces weight in sections and changes bind
- Side binds usually transition to top or bottom bind as the side bind is relieved
- Also includes twisting or torsional binds
- Constantly assess log for changes in the binds and kerf

Compound Binds

Side bind transitions to more bottom bind
Changes in bearing points
Torsional bind due to holding wood



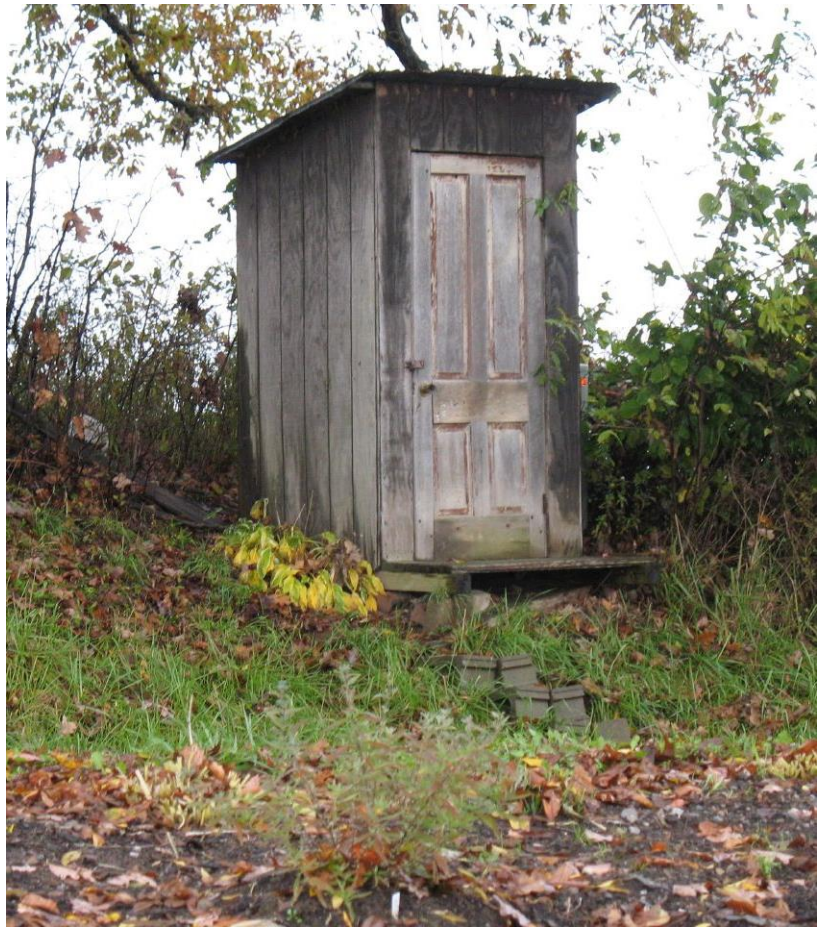
Binds Review

- Top bind
- Bottom bind
- Side bind
- End bind
- Compound binds

Remember…

Cut the Compression Side First!

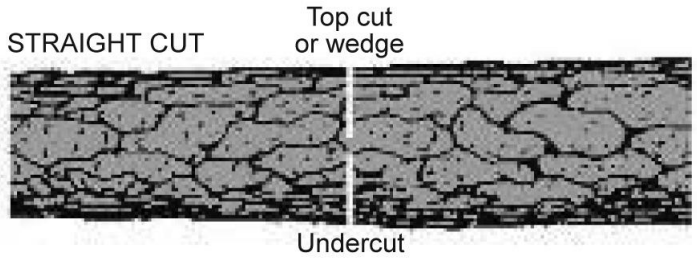
Break Time?



Commonly Used Cuts

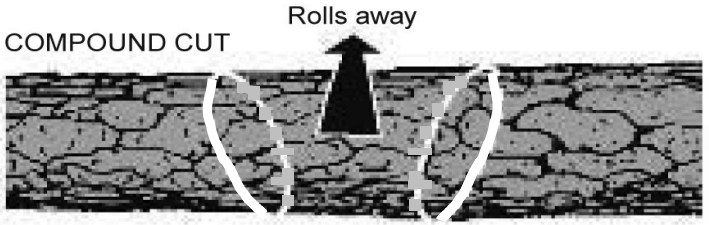
Straight Cuts

- Continuous top or bottom bind
- Low bind conditions, small logs



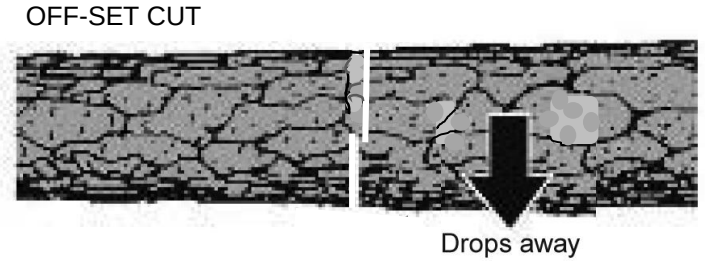
Compound Cuts

- Large logs, hillside logs, end bind
- Allows for easy release



Off-Set Cut

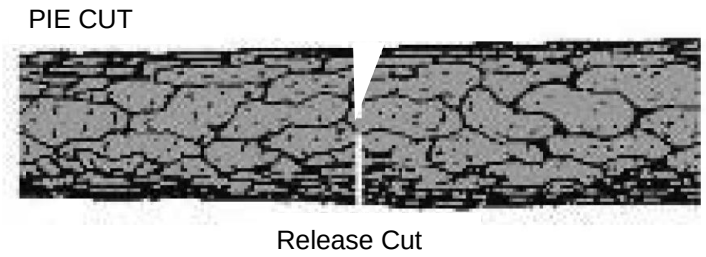
- Continuous top or bottom bind
- Straight cuts with offset
- Protection for crosscut saws
- Allows for control of release



Commonly Used Cuts

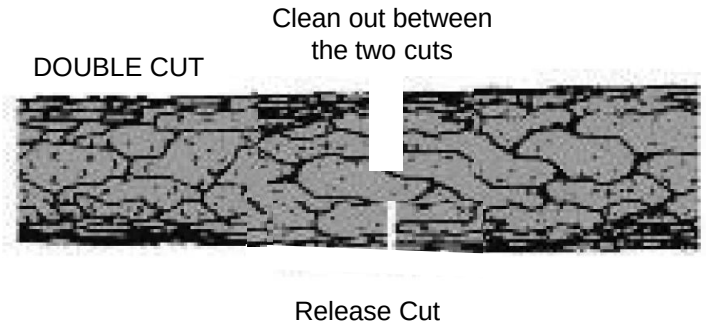
Pie Cut

- Use with all binds
- Use to allow for travel and control
- Useful with chain saw
- Rarely used with crosscut saw



Double Cut

- Severe side bind, large rotten logs
- Logs with torsion, shattered log
- Can be used to relieve side bind for crosscut saw

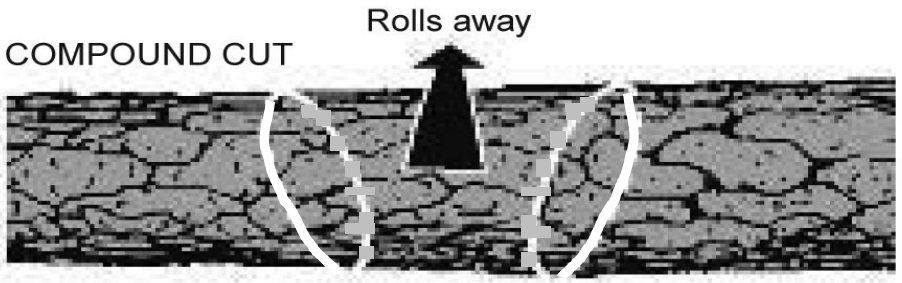


Straight Cut

- Continuous top bind
- Continuous bottom bind
- Low bind conditions or smaller logs
- Used in underbucking situations

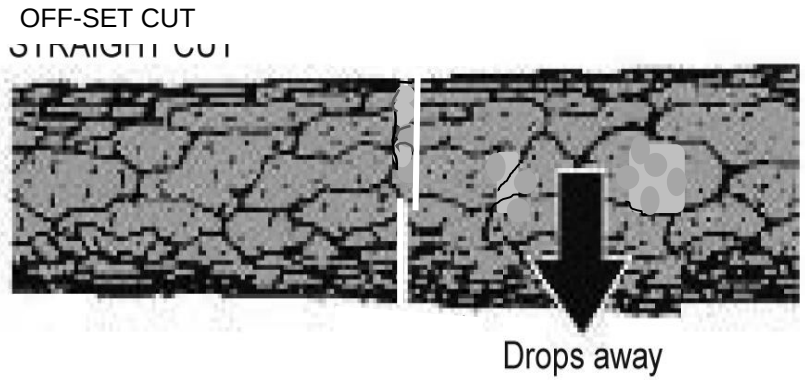
Compound Cut

- Face the direction to roll out section and make a “V” with arms
- Two angled cuts allow for clearance to roll out section
- Top angle opens outward and is tilted, to be wider on the top than bottom of log
- Back up with wedges or hanging wedges

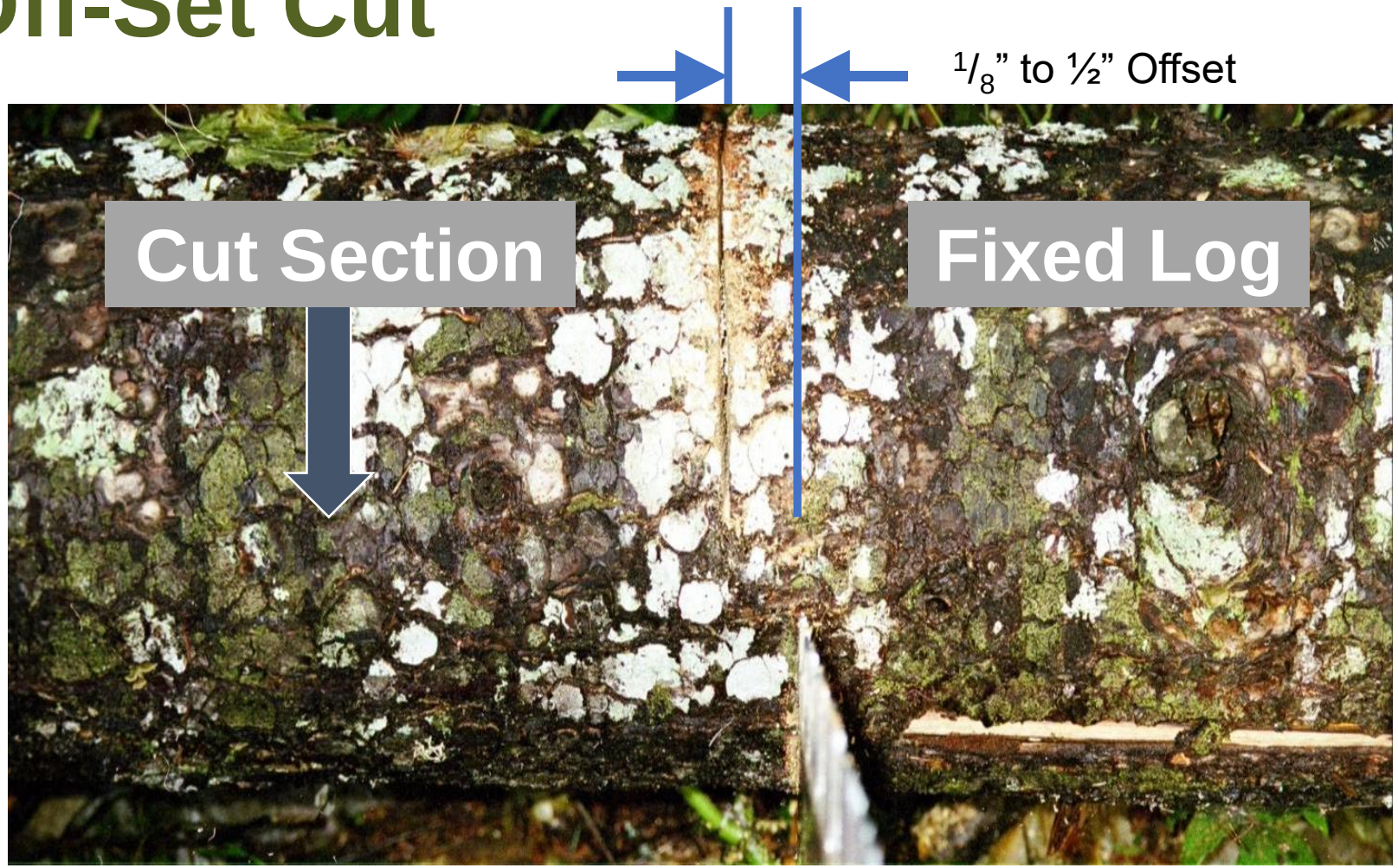


Off-Set Cut

- Allows controlled release of cut section
- Compression cut first
- Tension cut second
  - Off-set top kerf approximately ½” from bottom kerf
  - Allow the cut piece to drop and the kerfs overlap to sever the holding wood

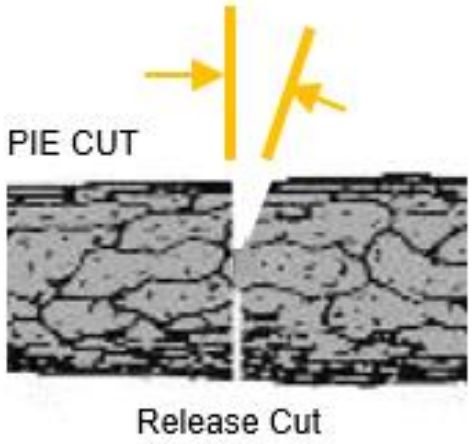


Off-Set Cut



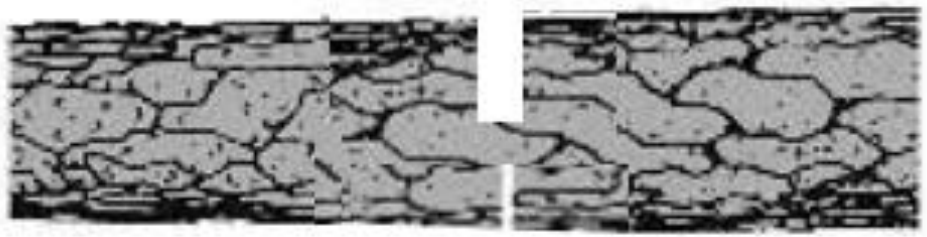
Pie Cut

- Useful with heavy bind, to remove material to allow log to move and to control the movement of the log
- Angle of pie cut only needs to match the expected angle the log needs to change, usually 10-30°
- Don’t cut deeper than 1/3 of the diameter of log



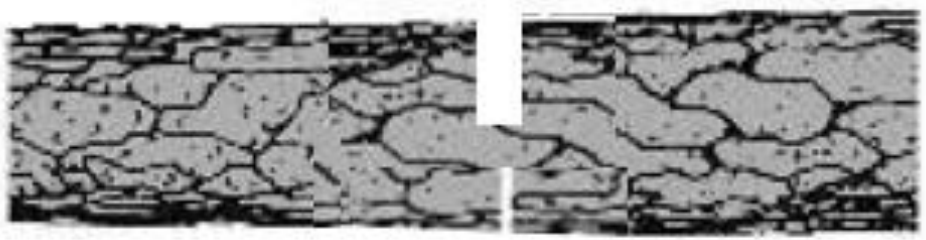
Double Cut

- Single buck to cut two parallel top kerfs
- Remove wood fiber from between two kerfs with Pulaski
- Repeat until log is severed or bad wood is removed
- Can be used with compound binds when they are too complex to identify dominate binds



Double Cut

- Binds can change across the split sections and cutting across the splits can bind the saw
- Cut two parallel cuts, each one a little at time
- Use poll of ax to knock out cut sections



What type of cut would you use?

Review: Commonly Used Cuts

- Straight Cut
- Compound Cut
- Off-Set Cut
- Pie Cut
- Double Cut

Wedging

Cut into the compression first…and carry lots of wedges

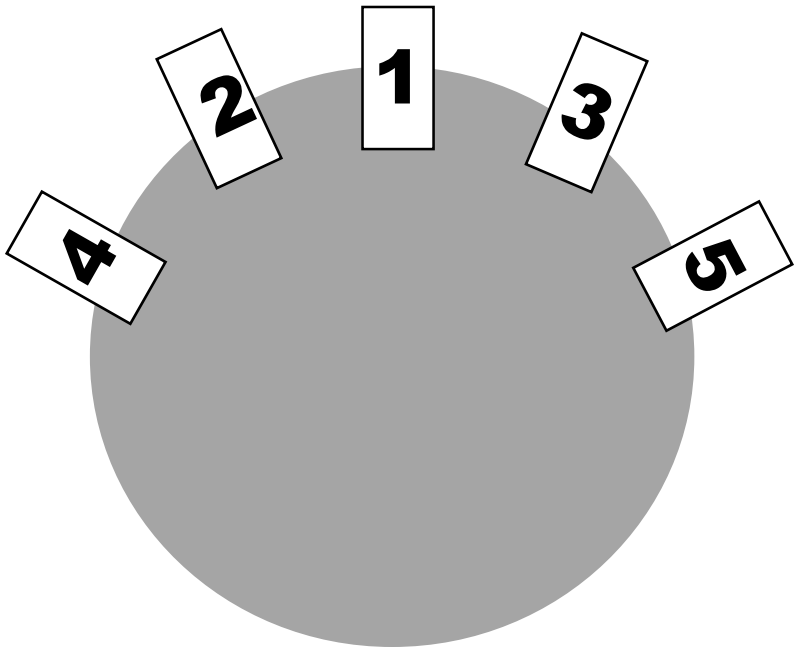
Wedging

Wedge as soon as the saw is fully in the log

Wedging

Use wedges to turn a top bind into a bottom bind

Wedge Placement



Safe Working Area

- Establish safe quadrant and escape route(s)
- Stabilize work area for solid footing
- Prepare work site
  - Mitigate hazards
  - Brush out and limb work area and escape route(s)
  - Remove tripping hazards
  - Secure around root wad
- Prepare cut track routes
- Establish safe areas for crew
- Control traffic on the trail – especially switchbacks

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

Build cribbing to support cut pieces or to change binds

Site Preparation

Use supports (rails) and mechanical leverage to move logs

Cutting Sequence

- ***Cutting sequence is extremely important …***
  - **Reduces hazards**
  - **Releases stored energy in the wood**
  - **Can reduce the amount of work**
  - **Provides for a safer work site**
  - **Work smart … Not hard!**

Cutting Sequence

- Assess binds, pivots, supports, bearing points
- Determine safe areas to work
- Address the level of complexity
- Focus on cutting sequence to remove stored energy in a controlled manner
- Don’t be target focused – may need to start at far end to safely mitigate hazards

Plan for Release Cut

- Is there room for the cut piece to release? Type of cuts?
- How will the log move? What is the safe side?
- Where will the cut piece travel?

Cut Piece Track

- Secure switchbacks for trail users, if needed
- Plan for use of added supports to guide or move after cut (rails or pivots)
- Clear path and add supports BEFORE cutting begins



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…

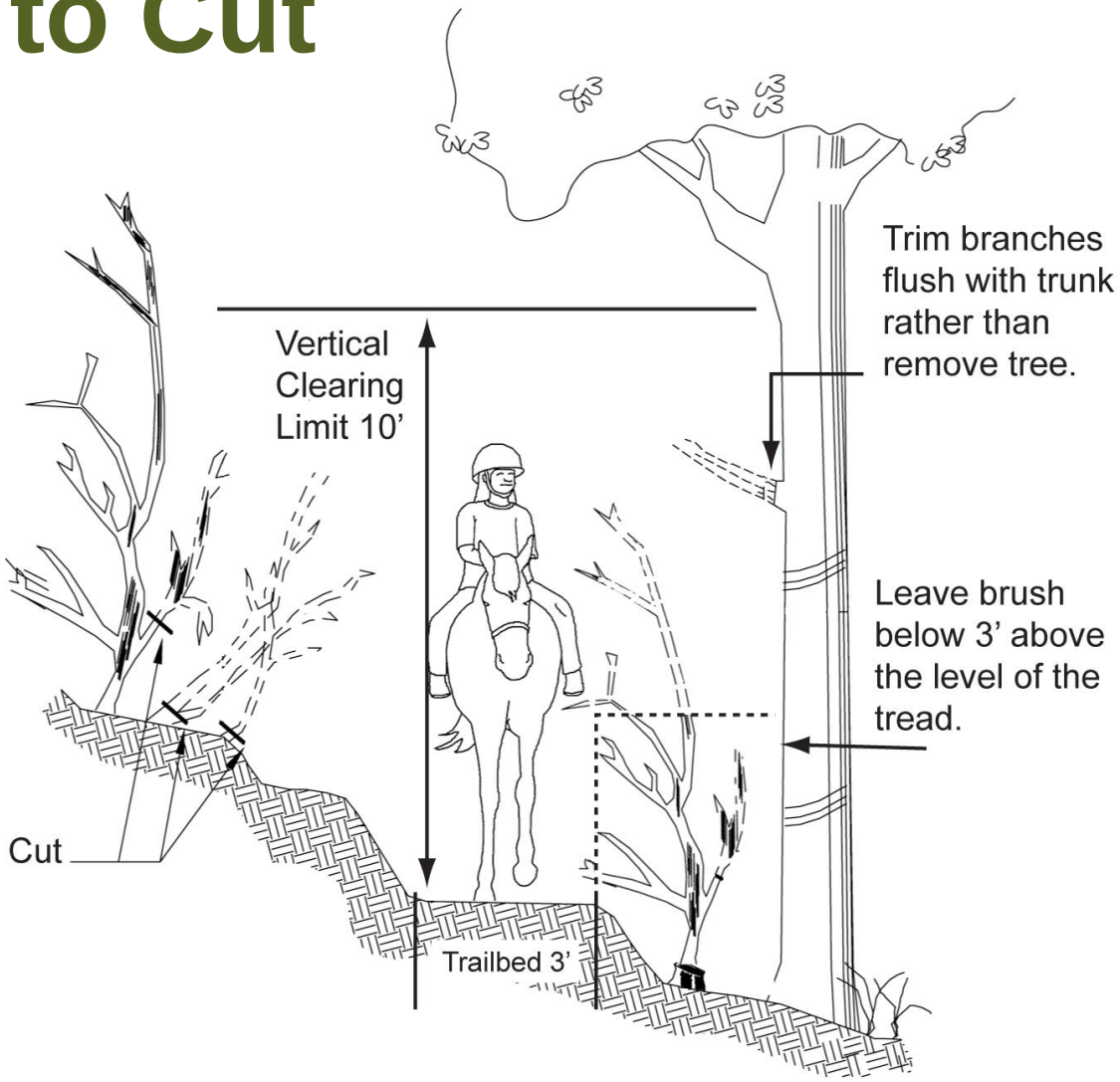
If it is a hazard to normal hiker or equestrian safety…

Flag It!

Inform Land Manager As Soon As Possible

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

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’

To Fall or Not to Fall?

Which one of these would you or <u>should</u> you cut?

Incidents: Lessons Learned

- Link: Lodgepole Bucking Injury
- Link: Hazard Tree Study

Working in Team Video