Section Three: Manual Felling

The Cold Hard Facts

- More loggers are hurt and killed during felling than any other activity!
- Most who die at work are killed within 10 feet of the stump.
- These accidents can be avoided!

To Safely Fell Any Tree You Must....

- Get rid of or stay away from potential hazards.
- Figure out the best felling direction.
- Plan, clear and use an escape path.
- Figure out the proper hinge size.
- Use proper controlled felling (making the cuts).

What are the Potential Hazards?

Throwbacks - As the tree falls through the other trees or lands on objects, those objects or branches may get thrown back toward the logger.

Dangerous Terrain - If the tree falls onto stumps, rocks, or uneven ground, a hazard may be created.

Lodged Trees (Hangs) - A tree that has not fallen completely to the ground because it is lodged or leaning against another tree.

Widowmakers - Broken off limbs that are hanging freely in the tree to be felled or in the trees close by.

Snags - Standing dead tree, standing broken tree, or a standing rotted tree to be felled or nearby.

Spring Poles - A tree, segment of a tree, limb, or sapling which is under stress or tension due to the pressure or weight of another tree or object.

Extreme Weather - Strong winds.

Entanglements - Vines or limbs of other trees intertwined with the limbs of the tree to be felled.

Other Workers and Machines - Workers or machines in the immediate area.

Ways to eliminate or Avoid

Throwbacks - If possible, avoid felling into other trees or onto objects.

Dangerous Terrain - If possible, move the obstacle, or change the felling direction.

Lodged Trees (Hangs) - Do not work around lodged trees. Have these death traps pushed or pulled down by a machine. Never cut the support tree.

Widowmakers - Knock them down or pull them down with a machine. Avoid working underneath them.

Snags - Use a machine to bring it down or it must be felled or tagged and avoided by at least two tree lengths.

Spring Poles - Use a machine to release the tension or release it with a chain saw by shaving wood from the underside (see limbing and bucking section).

Extreme Weather - Do not fell trees during high winds.

Entanglements - Undo the entanglement if possible or use a machine to fell the tree.

Other Workers and Machines - Request the workers or machines be moved.

"Remove snags and hangs with a skidder or dozer before work in the area begins or flag and avoid by at east two tree lengths.

Never cut the tree which supports the hang!"

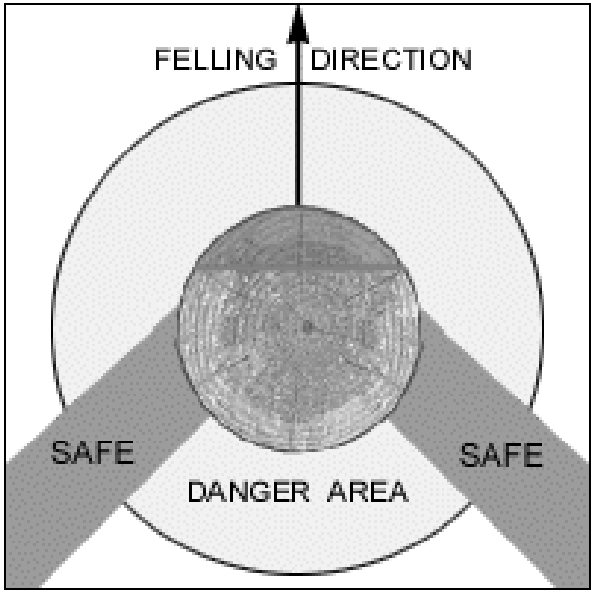
Plan Your Felling Direction

Planning helps prevent damage to the tree and harm to you!

- Clear a fall path and landing zone.
- Think about the lean of the tree.
- Think about the slope of the ground.

Escape Path....a Safe Retreat

- 45 degrees from the sides and back on either side.
- Never move away directly behind!
- Never stand there and think you can predict what a tree will do!
- Expect the unexpected!



"This graphic shows the safe retreat zones."

How to Retreat

- Using a bore cut and a release cut can make it easier to retreat in plenty of time.
- Don't turn back on a falling tree.
- Walk quickly away at least 20 feet.
- Try to put yourself behind a standing tree.
- It's a good idea to use the chain brake!

"This logger realizes that felling <u>any</u> tree can be hazardous and is retreating to a safe area".

Why a Felling Hinge?

- It provides controlled directional felling.
- It holds the tree to the stump during most of the tree's fall.
- It guides the tree in the intended direction.
- It makes things more predictable!

The Following Describes a Proper Hinge:

- The length of the hinge should be 80% of the diameter of the tree.

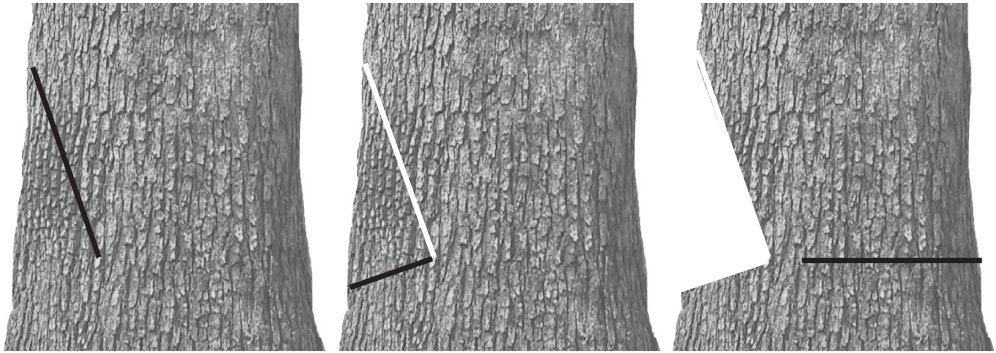
  Example: For a 20 inch tree the hinge should be 16 inches long (20 inches x 0.8 = 16 inches).

- The width of the hinge should be 10% of the diameter of the tree.

  Example: For a 20 inch diameter tree the hinge should be 2 inches wide (20 inches x 0.1 = 2 inches).

"The logger who felled this tree knew how to create a proper hinge. Even though he used a bore cut and release, he made sure he didn't cut away his hinge."

Making the Cuts



The Correct Top Cut

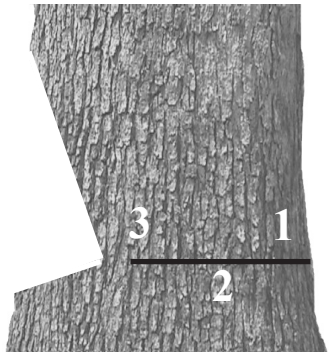
1. Start point - begin at any height.
2. Angle of Attack - cut downward at an angle of 70 degrees.
3. Ending point - stop when the cut reaches 1/4 to 1/3 the tree's diameter.

The Correct Bottom Cut

1. Start point - begin at a level that will give at least a 70 degree notch opening.
2. Angle of Attack - cut upward at a 20 degree angle.
3. Ending point - stop when the cut reaches the end point of the face cut.
4. Don't by-pass the end point of your face cut, it will wreck your hinge !

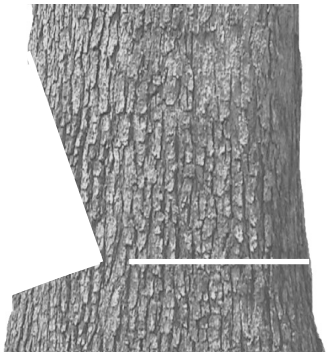
The Correct Back Cut

1. Start point - begin at the same level as the notch corner.
2. Angle of Attack - cut flat along a horizontal plane.
3. Ending point - stop at a point that will leave a hinge width 1/10 the tree's diameter.

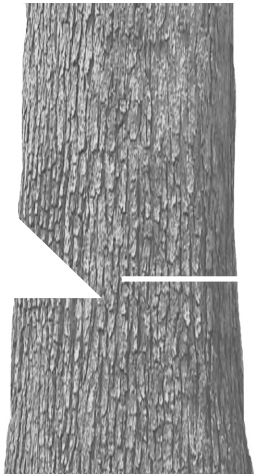


The Open Faced Notch - *Most Safe*

- Closes just before tree hits the ground.
- A higher degree of safety.
- Greater accuracy
- Less chance of kick back.
- Hinge stays there until tree hits the ground.

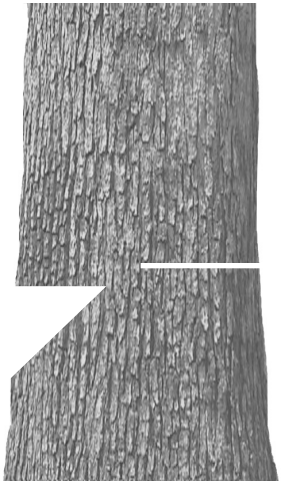


The Conventional Notch



- Closes in the middle of the fall.
- A lesser degree of safety.
- Less accuracy
- More chance of kick back.
- Hinge breaks early.

The Humbolt Notch - *Least Safe*



- Closes in the middle of the fall.
- A lesser degree of safety.
- Less accuracy
- More chance of kick back.
- Hinge breaks early.
- Saves a little wood, worth the risk ?

Safe Felling Check List

- ❑ Is your work zone free from danger trees, hangs, snags, and dead limbs?
- ❑ Did you look over the position, condition, and lean of the tree?
- ❑ Is the situation unusually hazardous or unfamiliar?
- ❑ If so, did you talk to your supervisor about it?
- ❑ Do you have a clear fall path and landing zone?
- ❑ Have you planned and cleared an escape path?
- ❑ Do you plan on using controlled directional felling?
- ❑ Will the technique include a notch and back cut leaving a sufficient hinge?
- ❑ Are you at least two tree lengths from other workers and machines?
- ❑ Are you wearing your hard hat, chaps, eye and face protection?