

# Trail Maintenance 101

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October 29, 2005



**New York/New Jersey Trail Conference**

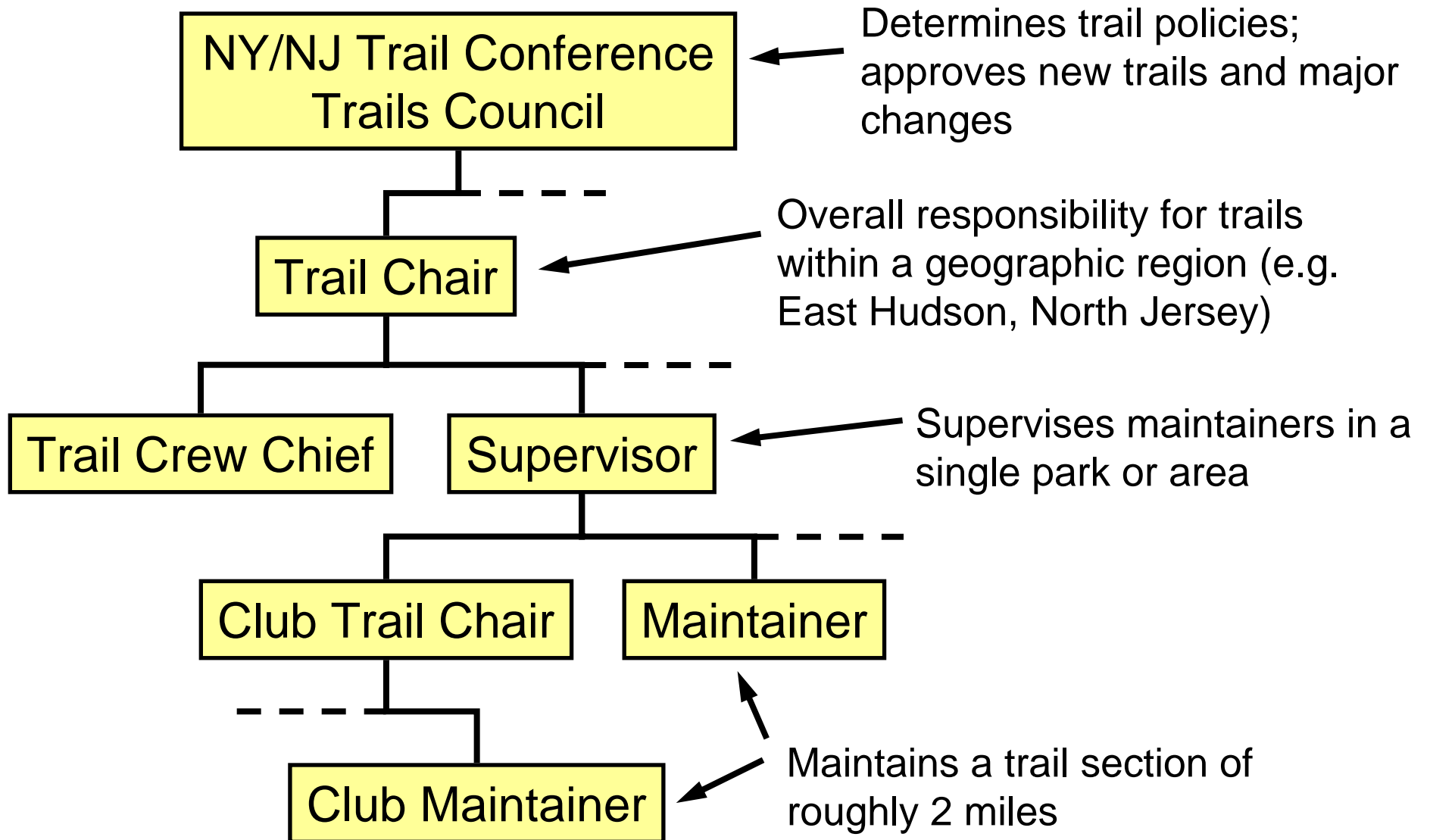
# Trail Maintenance 101 - Outline

- Welcome and introductions
- Why be a maintainer?
- Management of maintenance by NY/NJ Trail Conference
- What does a maintainer do?
  - Clearing and removing blowdowns
  - Blazing
  - Litter pick-up
  - Dealing with wet areas and erosion
  - Trail relocations
- Tools and equipment
- 10 Minute Break!**
- Blazing demonstration
- Health and safety
- Unauthorized trail use
- Forms and reporting
  
- Field work

# New York/New Jersey Trail Conference

- A federation of 85 hiking clubs and environmental organizations as well as 10,000 individual members
  - Over 100,000 total club and individual members
- Maintains more than 1500 miles of foot trails from Delaware Water Gap to beyond the Catskills
- Members contribute more than 19,000 work hours yearly
- For more information: [www.nynjtc.org](http://www.nynjtc.org)

# Trail Maintenance Organization Structure



# Why Is Trail Maintenance Important?

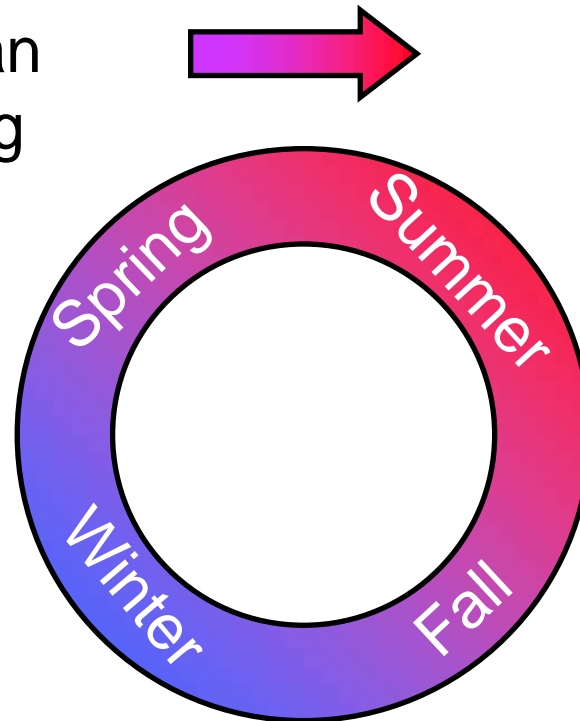
- Provides for a pleasant and complete hiking experience
- Makes trail safe for users
- Limits potential for lost hikers
- Minimizes impact of trails on the environment
- Minimizes or addresses erosion
- Educates hikers
- Reports trail abuse

# What Does a Trail Maintainer Do?

- Trail inspection and evaluation at least twice yearly
- Report problems requiring assistance immediately
  - Bridges, stone steps, water bars, etc. needing repair
  - Large blowdowns needing chain saw
- Clearing
- Blazing
- Removal of litter, fire rings, graffiti, etc.
- Trail improvements (often with help from others)
  - Erosion control, wet areas, minor relocations
- Report to supervisor twice yearly on work done and problems

# Yearly Maintenance Cycle

- Inspect for and clean up winter and spring storm damage
- Look for water problems
- Plan projects



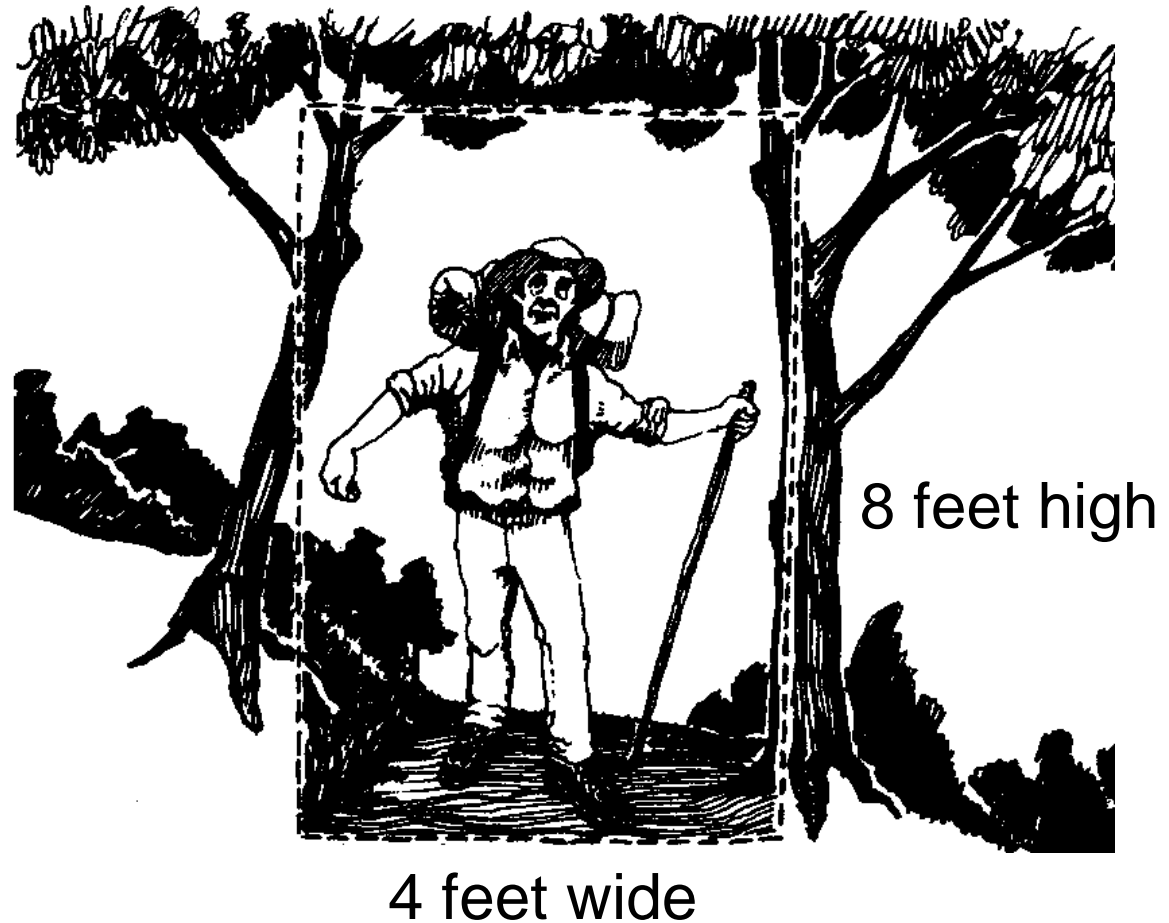
- Clip after spring and early summer growth
- Best time for blazing

- Inspect trail (if conditions permit)

- Inspect trail
- Clean up
- Complete projects

# Clearing the Trail

Appalachian Trail  
specification:

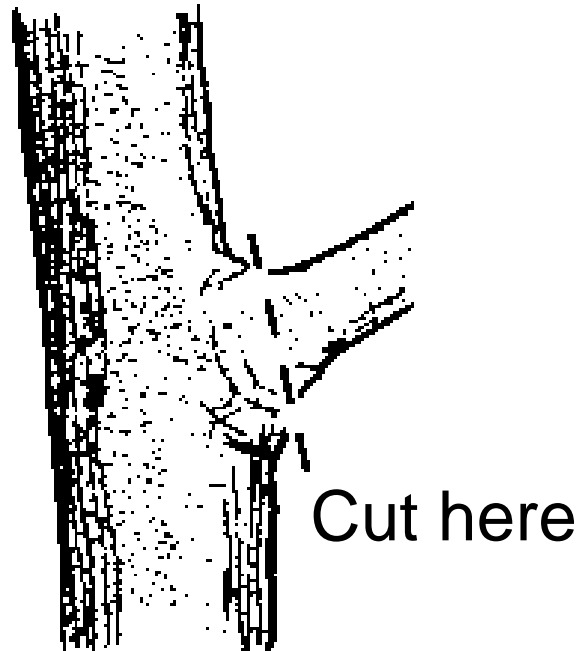


- Trails with little backpacking traffic may be narrower with less overhead clearance--check with supervisor
- Be sensitive to the environment -- do not clear excessively



# Clearing the Trail

- Cut branches flush with the main stem or at a fork



- Cut brush or small trees at ground level
- Drag branches off the trail with the cut end away from the trail
- Cut branches which obstruct the view of blazes
- Block side and unauthorized trails with brush to avoid confusion

# Blowdowns

- Trail Conference policy is normally to clear all blowdowns
  - Not an effective deterrent to ATV's
  - Hikers will walk around blowdowns, causing trail widening and erosion
  - Trail without blowdowns can provide a fire break

- Use a bow saw for trees up to 6-8 inches in diameter, depending on your ability

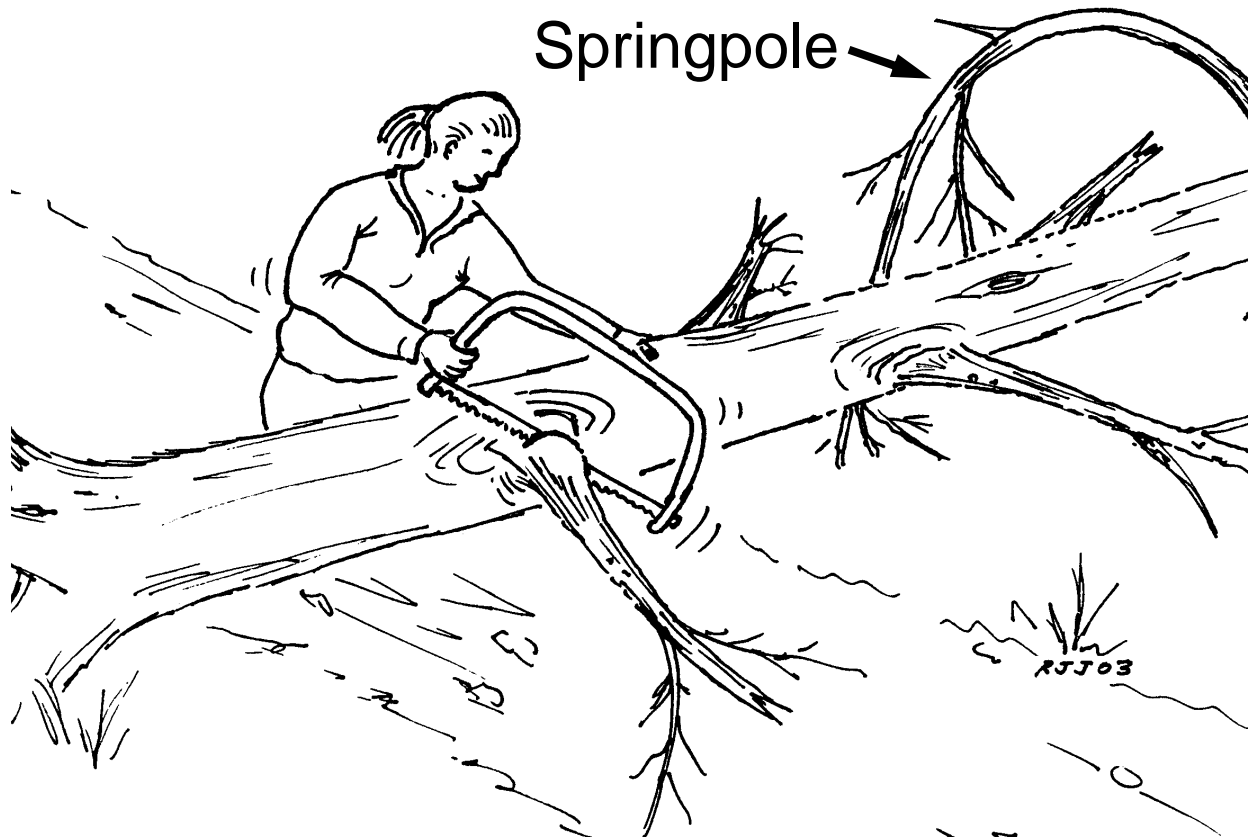


- Call supervisor for larger blowdowns requiring chain saw
  - Give location accurately
- Use of chain saw requires Trail Conference certification
  - Contact supervisor if you want to take certification course

# Clearing Blowdowns

## 1. Safety

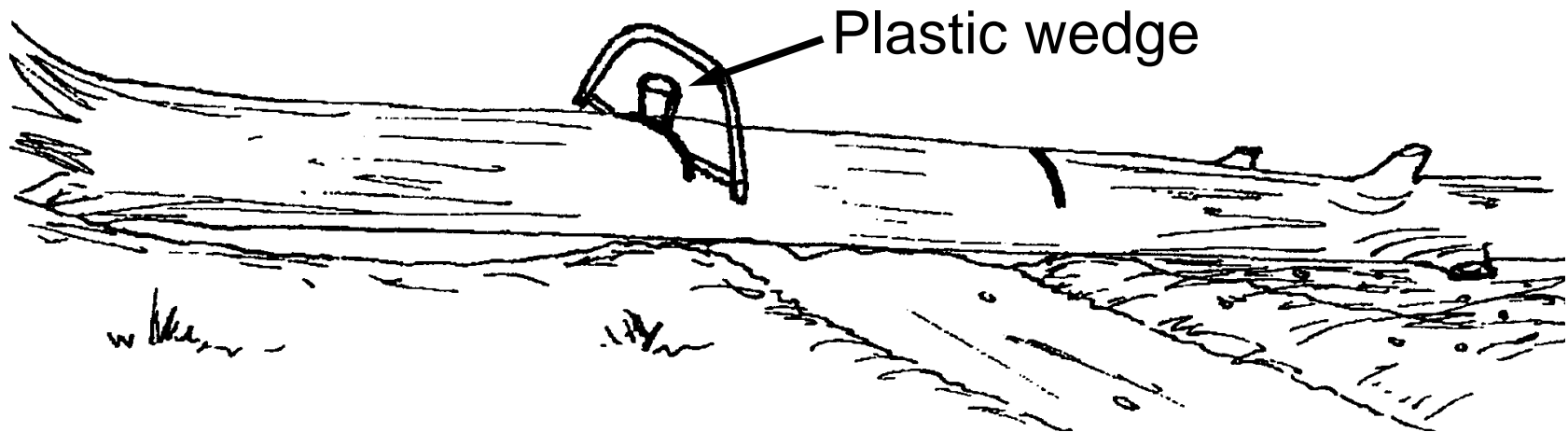
- Check for hazards such as springpoles and overhead limbs
- Do not work on hung-up trees or trees above shoulder height
- Work on uphill side if possible so tree does not roll onto you
- Remove side branches and brush so you have room to work



# Clearing Blowdowns - 2

## 2. Cutting blowdowns on the ground using a bow saw

- If tree is near or on the ground, you must cut from the top
- You will often need to take action to prevent saw from binding
  - Use a lever to raise the log at the point under the saw
  - Pound a plastic wedge into the cut after the saw blade
- If possible, make one cut and swing the rest of the log off the trail
- Otherwise, make two or more cuts and roll the cut pieces downhill off the trail

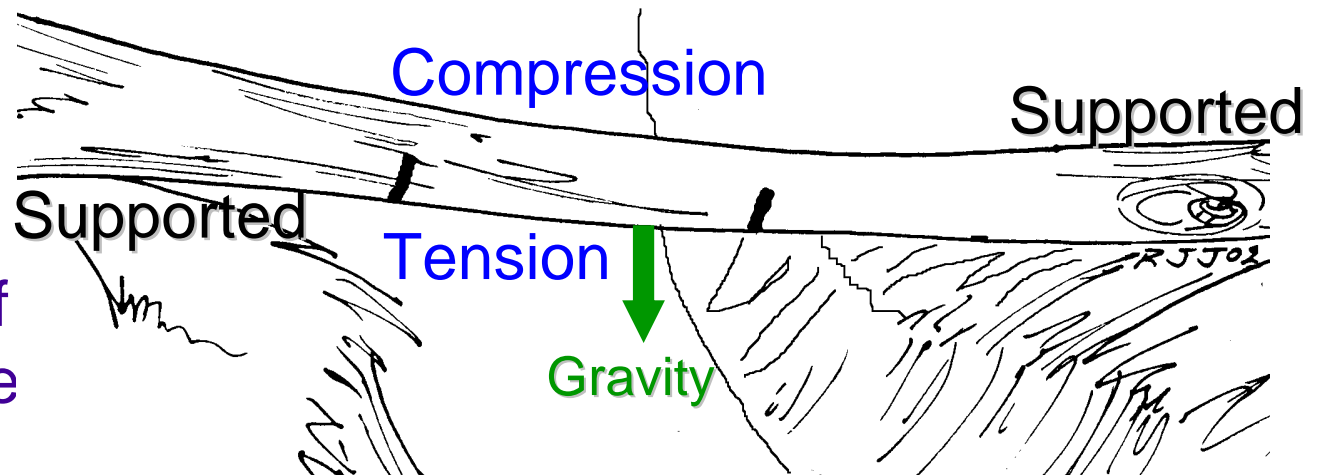


# Clearing Blowdowns - 3

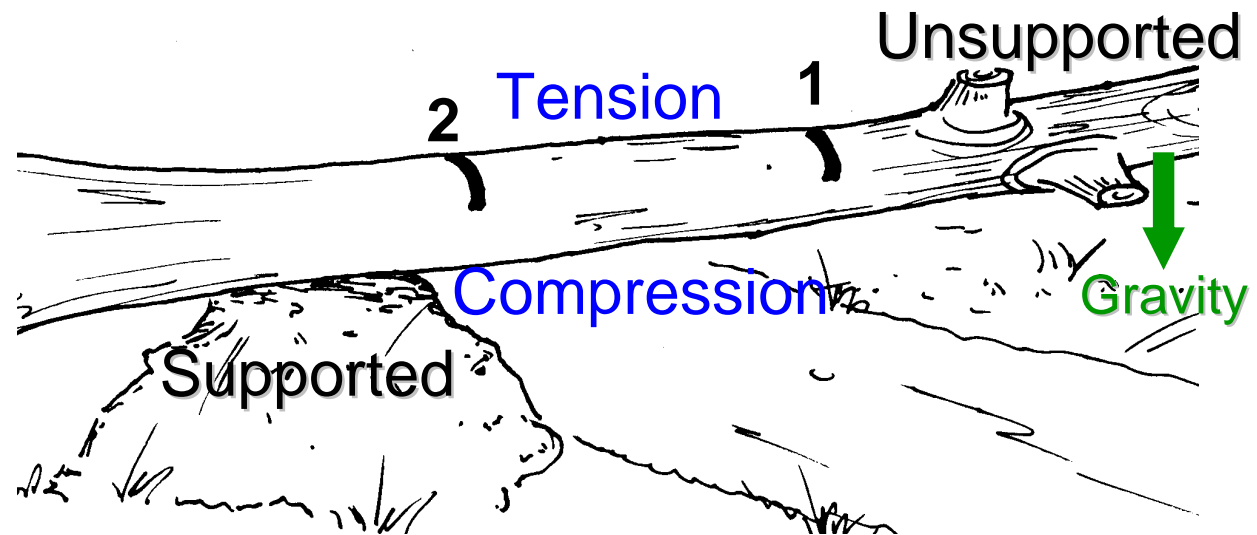
## 3. Dealing with tension and compression forces in logs

- Due to gravity, one side is in compression and one in tension
- Tension pulls apart--saw from tension side so saw will not bind

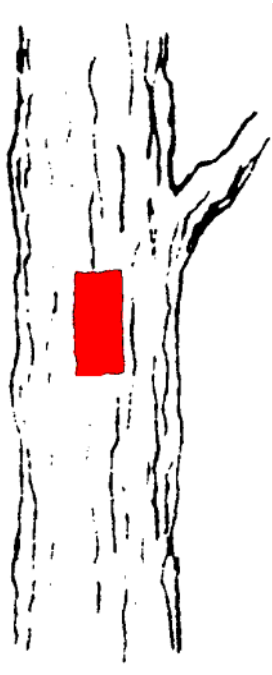
- If supported at both ends, bottom is in tension
  - Saw from bottom if possible; otherwise use a lever or wedge



- If supported at only one end, top is in tension
  - Cut from top at 1 and then at 2



# Blazes



**Paint Blaze**



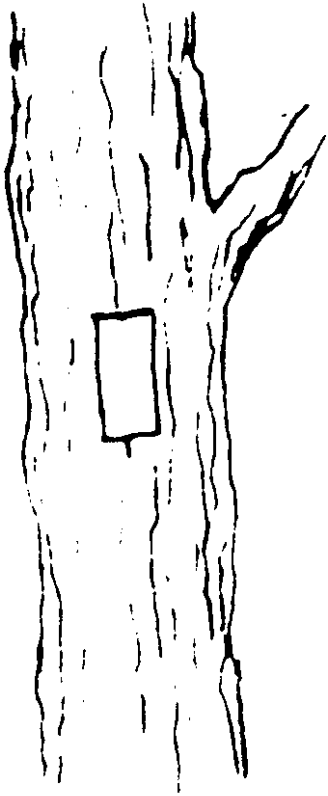
**Plastic Tag Blaze**



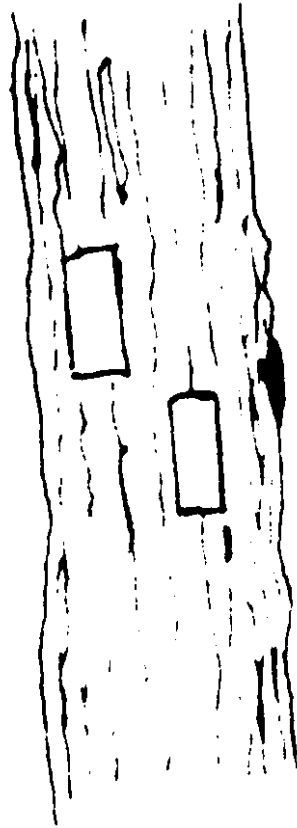
**Cairn**

- Paint or tag blazing depends on landowner
  - Supervisor will specify type and color of blazing for trail
- Cairns may be used where there is nothing to blaze or to emphasize an important trail junction
- Posts may occasionally be needed in treeless areas

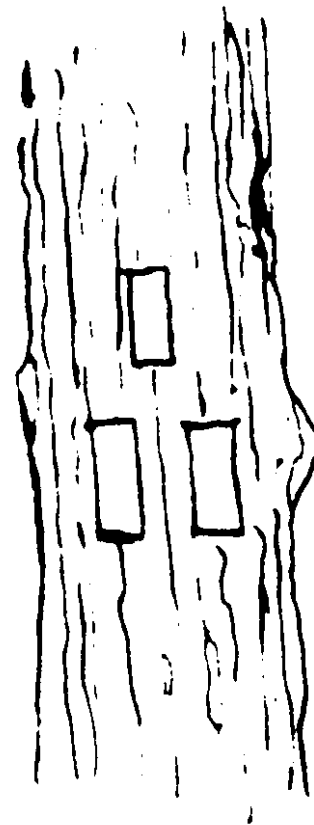
# Blaze Patterns



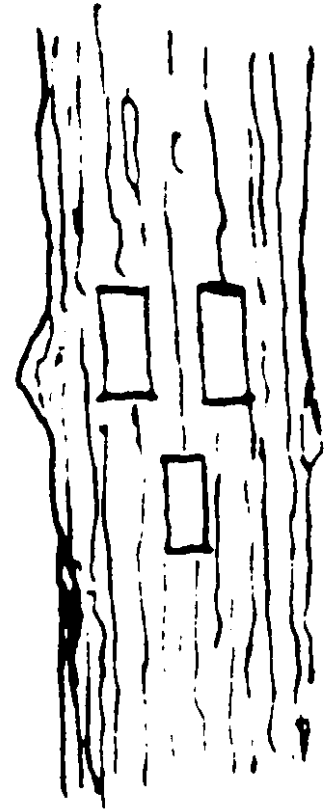
Standard  
Blaze



Left Turn  
(upper blaze shows  
direction of turn)

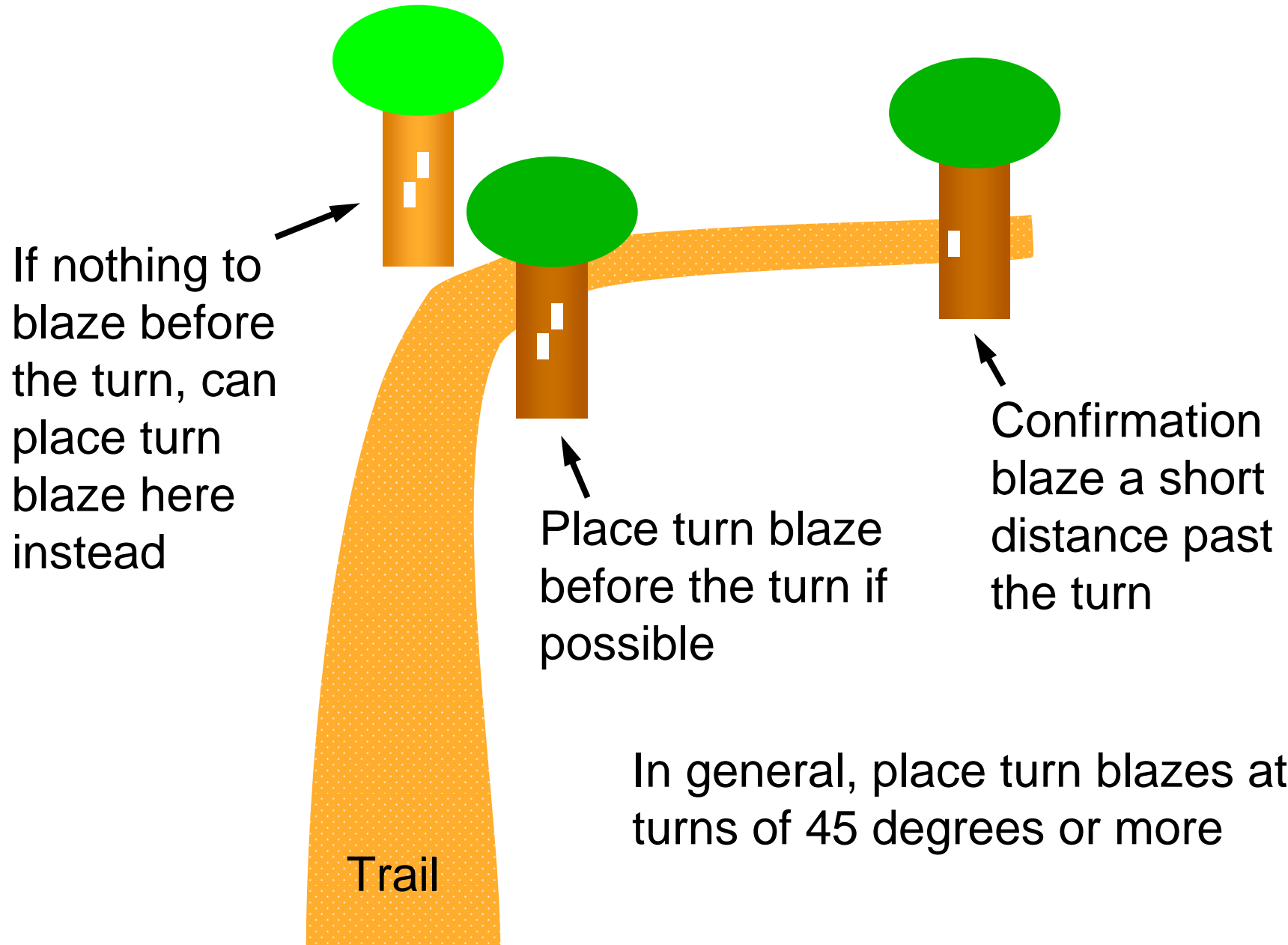


Start of  
Trail



End of  
Trail

# Blazing of Turns

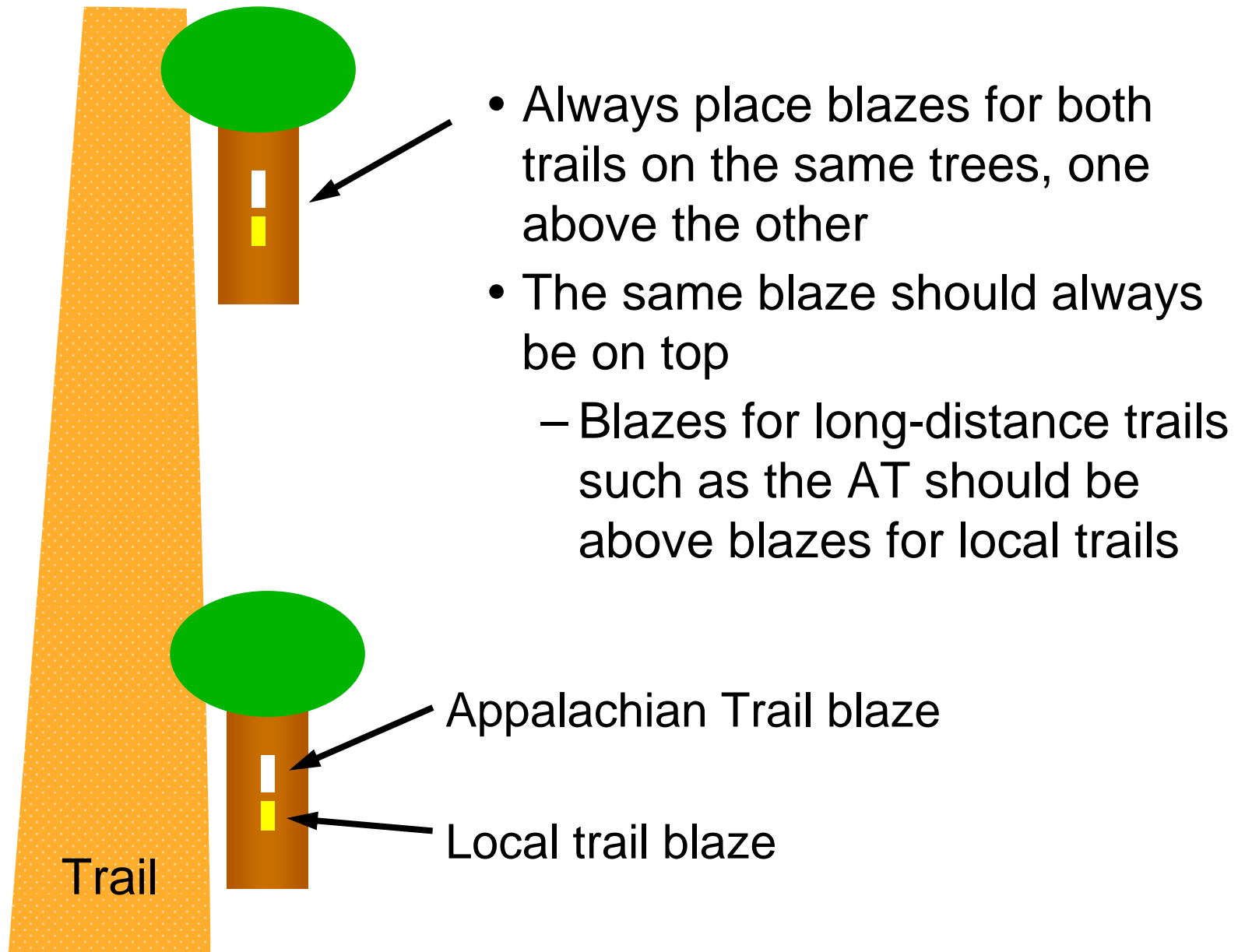




# Blazing Hints

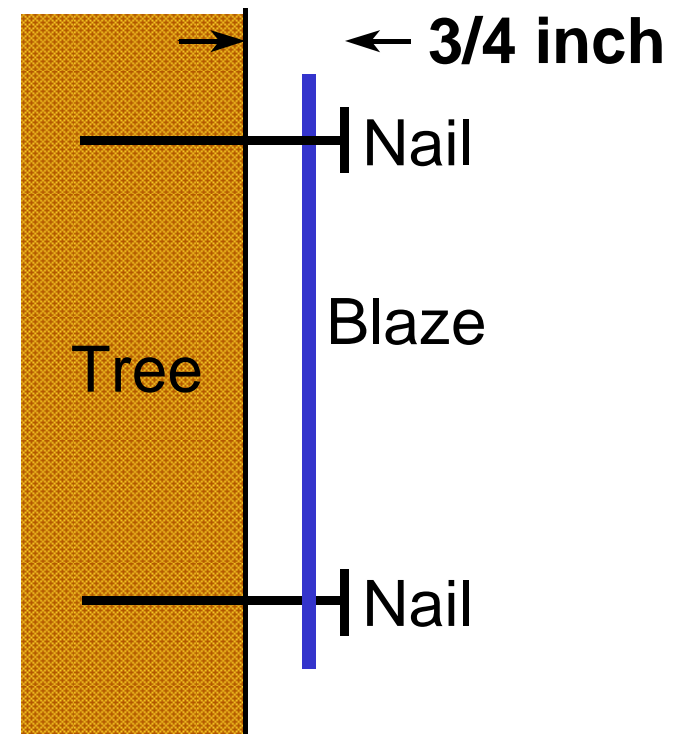
- Don't overblaze or underblaze
  - Rule of thumb: When passing a blaze, next blaze should be visible
  - Fewer blazes on woods roads, more in difficult areas
  - Trailheads and trail crossings must be blazed clearly
- Blazes should be near eye level
- Blaze trees which catch the eye, preferably large trees near the trail with dark-colored bark
- Never blaze dead trees
- Avoid blazing rocks if possible
- Paint out unneeded blazes with gray or brown spray paint
- Make a separate trip for blazing, preferably with two people
- Blaze one direction, then the other direction
- Don't just repaint blazes; take a fresh, objective look

# Blazing Two Trails on the Same Treadway



# Tag Blazes

- Use 2 inch galvanized roofing nails
- Do not nail tight against tree-- allow at least 3/4 inch for growth
- Use 2 nails, one near top and one near bottom, never at sides  
*(a few trails use one nail--your supervisor will advise you)*



# Paint Blazes

- Scrape trees with rough bark; never scrape through the bark
- Supervisor will indicate proper color and type of paint
  - Water-based paint is now preferred
- Use a template to get accurate blaze size and shape
  - 2x3 inch, except 2x4 for Long Path and 2x6 for AT
- Paint using a small brush
- Avoid blazing if rainy or temperature is below 50 degrees

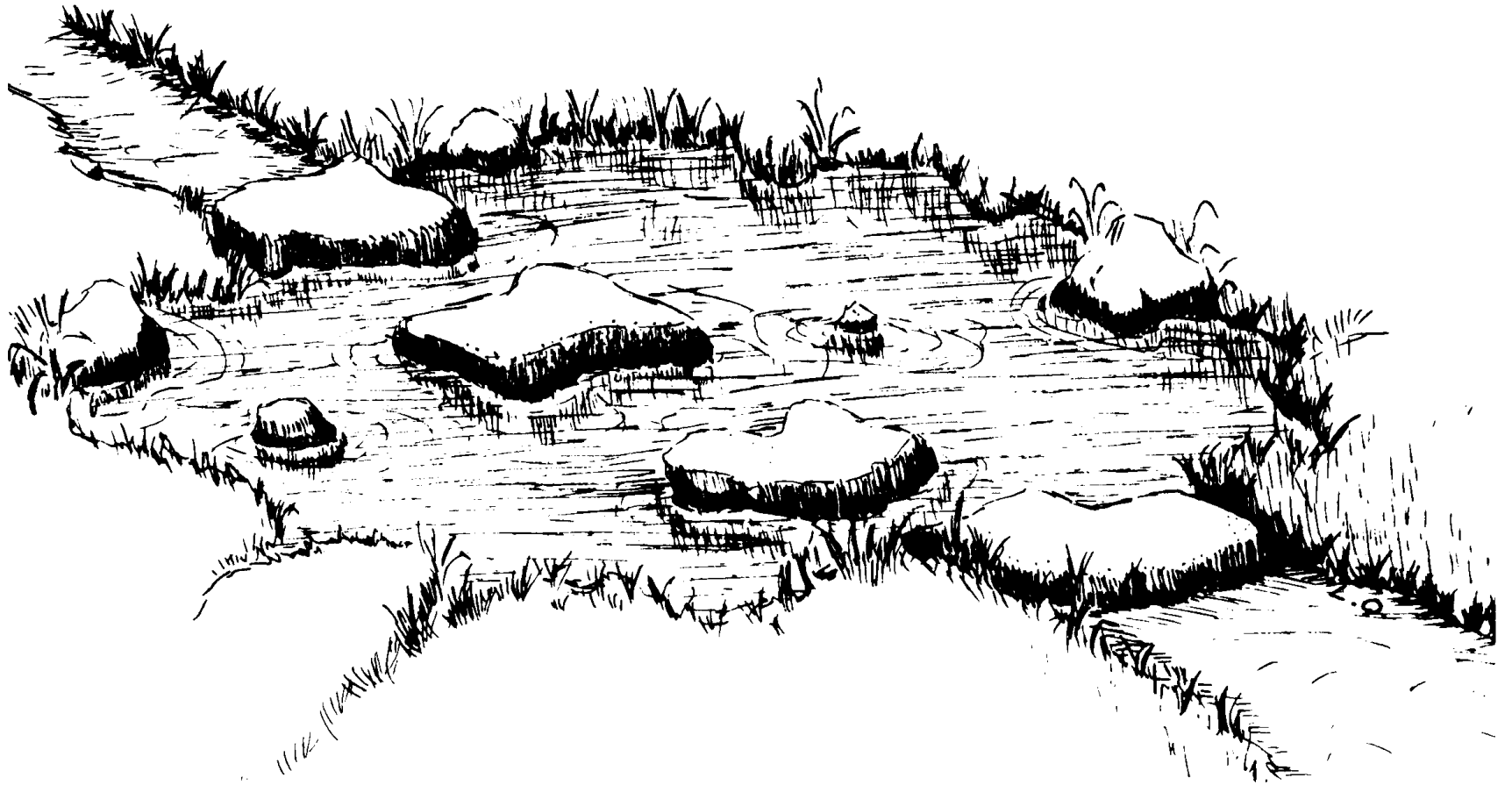
## Tools

- Scraper
- Brush 1/2-1 inch wide with cup and plastic wrap
- Paint in screw top jar
- Template
- Equalizing spray paint (gray/brown)
- Rags, disposable gloves



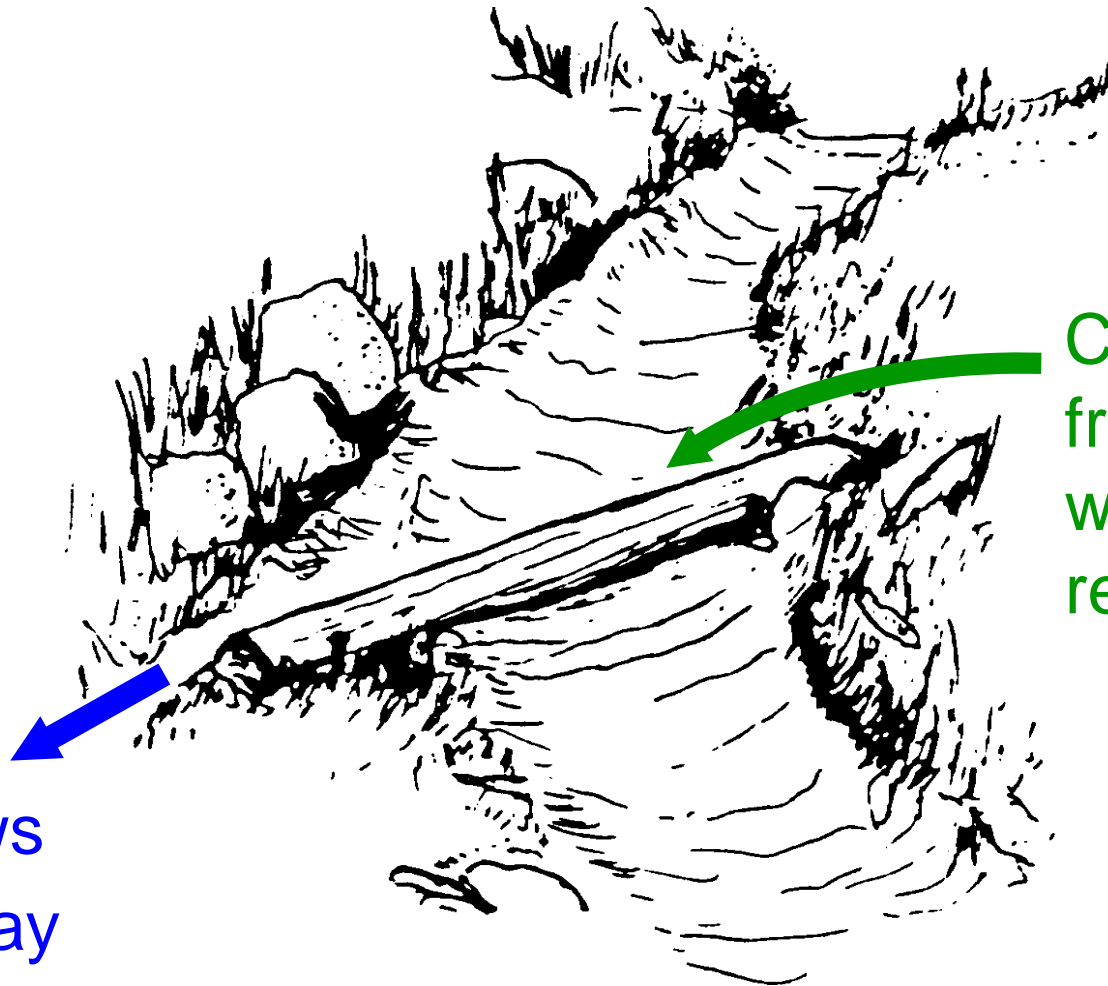
# Stepping Stones

- Place in wet areas and stream crossings to provide safe footing and to avoid trail widening
- Use large, steady stones
- Contact supervisor if the job is too big for you to handle



# Water Bars

- Usually built by trail crew, but maintainer must clean
- Use shovel or your boot to remove debris behind water bar
- Place dirt on downhill side so trail level is at top of water bar

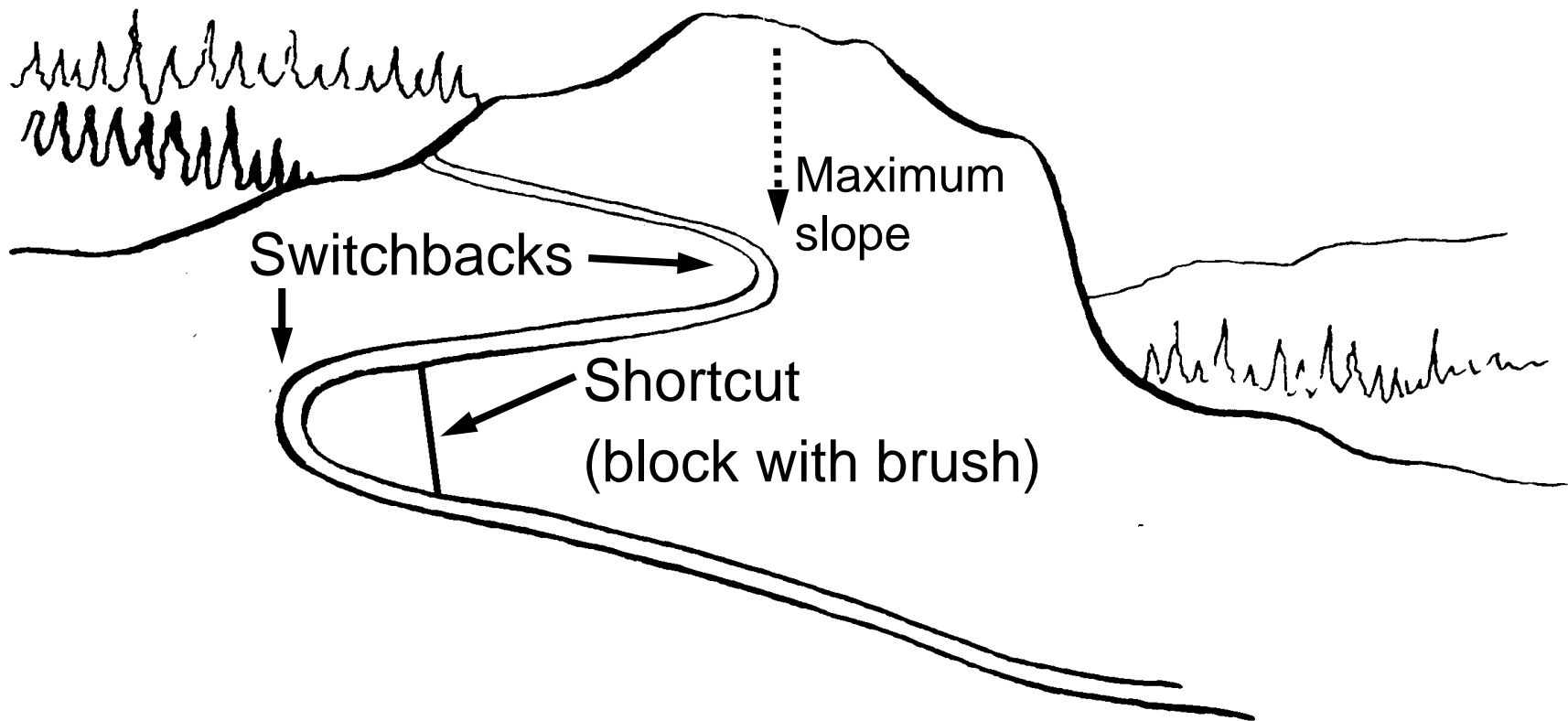


Water flows  
off treadway

Clear debris  
from behind  
water bars  
regularly

# Switchbacks

- Switchbacks give a gentler slope and reduce erosion
- Block off shortcuts with branches and debris



# Trail Relocations

- Follow terrain in a more natural way
- Prevent erosion
- Avoid wet areas (Are there better alternatives?)
- Make trail safer
- Gain improved views
- Conform to landowner requests

## **Relocations often require approval**

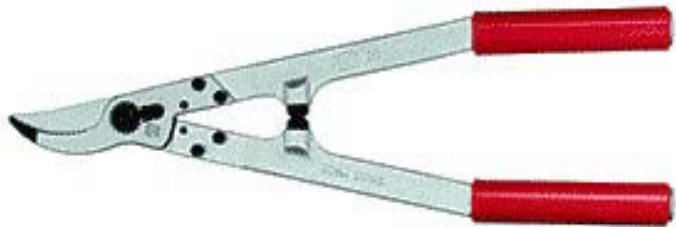
- Maintainer may do insignificant relocations, but should inform supervisor
  - Not likely to be noticed by a hiker familiar with the trail; typically affects less than 20 feet of trail
- Supervisor will advise on approvals needed for all more significant relocations



# Tools For Trail Maintenance

## Tools every maintainer needs

- Loppers



- Hand pruners



- Bow saw (24-inch blade best)



## Other tools you might want

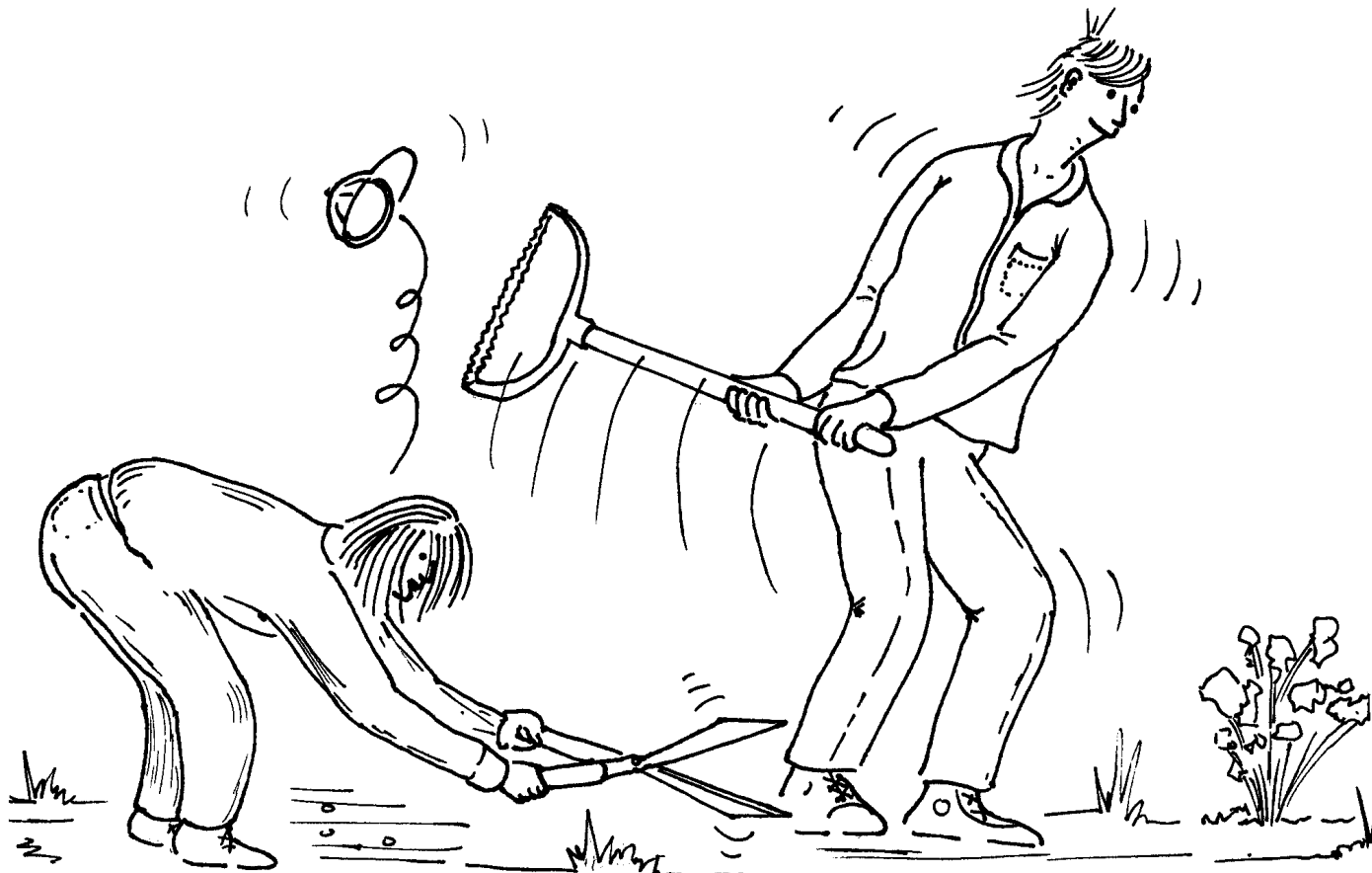
- Weed whip or pruning shears for low-growing plants
- Folding pruning saw
- Pick-mattock or shovel

- Blazing tools
  - Tag blazes, hammer, nails
  - or -
  - Painting tools
- Litter bags
- Leather work gloves

# Safety

Trail Conference has an enviable safety record, but constant attention is needed to avoid accidents

- What accidents have you had on the trail?



# Safety

## **Learn safe practices and use common sense**

- Use the proper tools and learn to use them safely
- Do not work too close to others in your group
- Use great care in clearing poison ivy
- Know your limitations--ask for help if you need it

## **Follow normal safe hiking practices**

- Avoid maintaining alone and tell others where you are going
- Be aware of health risks due to heat and cold
- Take plenty of water
- Take first aid kit, flashlight, and other critical gear
- Avoid poisonous snakes, rabid animals, and yellowjackets
- Check for ticks; be aware of tick-borne illness

# Special Plants on Your Trail

- Threatened and endangered species
  - Such plants have been identified on a few trail sections (mostly on the AT) – this information is confidential
  - Supervisor will advise on any maintenance restrictions
  - If you identify such species on trail, notify Trail Conference
- Invasive exotic (non-native) species
  - Many (e.g. barberry, purple loostripe) are well established
  - Discourage when you can
  - Generally no herbicide use

## **Barberry invasion**

You can't do much about this, but a little work to fight new invasions can make your job easier.



# Unauthorized Trail Use

- ATV's, horses, mountain bikes, hunters
  - Avoid confrontation and use good judgment
  - Know regulations for your area
  - Try to get description, license plate number, etc.
  - Depending on significance, contact park office and/or enter information into form on Trail Conference web site
- Vandalism, cut trees, encroachment on park property, etc.
  - Contact supervisor and/or park office

# Reporting

- Important to submit reports to supervisor on time
  - Due at the end of May and November, covering work done during the previous 6 months
  - Supervisor will provide report forms, or they are available on the Trail Conference web site
- Information to be reported:
  - Number of workers, hours worked, hours traveled
  - Nature of work done (clearing, inspection, etc.)
  - Location and description of problems such as blowdowns



# New York-New Jersey Trail Conference

156 Ramapo Valley Road ○ Mahwah, NJ 07430 ○ (201) 512-9348 ○ info@nynjtc.org

## TRAIL MAINTENANCE REPORTS — Maintainer SUMMARY

**TO:** Trail Maintainers:

The Trail Conference **requires** that maintainers submit this completed form to their Conference supervisor twice annually. Reports are due by May 31st for work done December through May and by November 30th for work done June through November. *Your timely completion of this report is vital to our maintenance program.* Thank you.

**PLEASE COMPLETE AND RETURN TO YOUR SUPERVISOR BY:** May 31 (Spring Report) or November 30 (Fall Report)

To complete this form *electronically*, enter your biographic information in the appropriate shaded fields. Press the **TAB** key to move to the next field. Next, enter the appropriate volunteer trail work information into the table below. When you are finished, click file, *Save AS*, and rename the file with your name. You can either email this form to your supervisor or print the form and mail it.

Name of Trail: \_\_\_\_\_ Report for: Spring  Fall  (check one) Year: \_\_\_\_\_

Trail Section: From: \_\_\_\_\_ To: \_\_\_\_\_

Name of Maintainer: Individual and/or Club: \_\_\_\_\_

Address/City/State/Zip: \_\_\_\_\_

Phone D: (\_\_\_\_) \_\_\_\_\_ E: (\_\_\_\_) \_\_\_\_\_ E-mail: \_\_\_\_\_

\* Work hours = number of workers x work time

\*\* Travel hours = numbers of workers x travel time from house to trail assignment and return (driving and walking)

Date	Work done: Inspection, blazing, clipping, scouting trips, trail layout and design, assisting w/workshops, consultation and meetings (specify) (Use reverse if necessary)	No. workers	Total Work Hours*	Total Travel Hours**
Number of DIFFERENT workers: (designated maintainer(s) plus others):			Total above	Total above

*If you have chosen to maintain blazes for a co-aligned trail and make additional visits to your trails for blazing, please report your hours below (For example: Highlands Trail, Long Path, Appalachian Trail, etc...)*

Date	Co-aligned Trail Names	No. Workers	Total Blazing Hours	Total Travel Hours

Please turn *Over*

**Current Trail Problems:** *Overgrowth, erosion, wet areas, litter, downed trees, damaged signs, other.*  
Is help needed with any problem area? If so, describe:

**List names of those in work parties OTHER THAN DESIGNATED MAINTAINER (S)**  
(Include addresses & phone numbers of new or occasional workers)

Volunteer(s)	Address	Phone(s)

Return this form to your Trail Conference Supervisor:

Last revised June 12, 2003

***Thank you for your volunteer trail caring efforts!!!!***



# Thank You

- Our beautiful trail network is possible because of hundreds of dedicated volunteer trail maintainers
  - We hope you will join us



**New York/New Jersey Trail Conference**