



PCTA Trail Skills College Curriculum Field Reference



Course 107. Hand Tool Field Maintenance

STUDENT SKILL OUTCOMES:

- Understand the uses of common trail work tools
- Be able to assess tool conditions and recognize unsafe tools
- Know how to address common tool maintenance problems in the field
- Be able to sharpen an Pulaski/axe and loppers

KEY TERMS:

sharpening, rehandling, bastard file, bevel, sheath, fastening or grady wedge

KEY CONCEPTS:

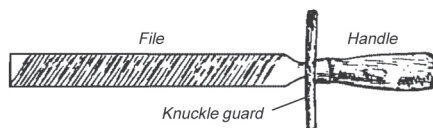
- 1) Safety Documents and Concerns: Personal Protective Equipment (PPE), Job Hazard Analysis (JHA)

- 2) Types of Hand Tools: Uses, strengths & precautions
 - Understand the proper use of each tool
 - Use the right tool for the right job
- 3) Tool Carrying and Storage: Sharp side down, sheathed, not over the shoulder except rock bar or crosscut saw, downhill side
- 4) Common Problems in the Field
 - Loose heads
 - Soaking method
 - Fastening wedge method
 - Dulling
- 5) Sharpening
 - Pulaskis/axes
 - Loppers
 - Difficult to sharpen in the field- shovels, Reinharts, mattocks, hoes, mcleods
- 6) Broken and Unsafe Tools
 - How to treat broken or unsafe tools



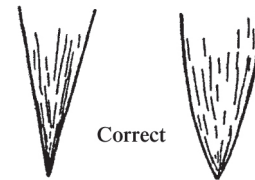
Figure 1. Fastening wedge.
(IMAGE COURTESY OF PCTA)

Figure 2. Bastard file.
(IMAGE COURTESY OF THE USFS)



This file has a knuckle guard made from old linen hose.

Figure 3. Blade bevel.
(IMAGE COURTESY OF THE USFS)



Tool	Uses	Strengths	Precautions
Pulaski	Chopping logs, limbing, grubbing, loosening soil	Moderate weight, forceful for swinging, versatile; can be field sharpened	Do not use for prying; Roots, dirt & rocks will quickly dull the cutting edge
Single-bit Axe	Chopping, wedging	Light weight	Take care to keep cutting edge sharp; Be careful for kickback when banging wedges
Double-bit Axe	Limbing, chopping	Accurate and powerful	Dangerous exposed blades; take care to keep cutting edges sharp
Loppers	Brushing, limbing	Lightweight and easy to use; can be field sharpened	Cannot cut anything larger than 1/2"; Do not twist while lopping; Must be kept sharp
McLeod	Grubbing, removing slough & berm, shaping, spreading, finishing tread, tamping, scraping	Versatile, large head is good for spreading dirt and leveling	Relatively heavy; difficult to rehandle in the field
Shovel	Excavating, grubbing, removing slough & berm, scraping	Very versatile, good for moving large amounts of soil	Do not use for prying; best used for loose soil; difficult to rehandle in the field
Hoes (Grub, Hazel, Rogue, Terra, etc.)	Grubbing, excavating, cutting roots, spreading, shaping, scraping, removing slough & berm	Moderate weight, forceful for chopping roots	Heads can be loose; not meant for heavy prying
Reinhart	Grubbing, moving soil, scraping, removing slough & berm	Versatile, good for moving large amounts of soil	Do not use for prying; difficult to rehandle in the field
Pick Mattock	Prying, excavating, cutting roots	Very good for rocky soil; strong prying leverage; removable head	Heavy; pick end can bend or break if hit too much on solid rock
Cutter Mattock	Cutting roots, excavating	Very good for soil with lots of roots; removable head	Heavy; keep cutting edges sharp for maximum utility
Rock Bar	Prying, moving rocks, tamping	Great leverage; comes in varying sizes/weights	Heavy

Figure 4. Sharpening gauge. (IMAGE COURTESY OF PCTA)

