Wildlife Services
Standard Operating Procedure

Title: Wildlife Services Tree Climbing Training and Safety Procedures	***Number: HSWS 004.00*** ***Replaces: N/A*** ***Effective date: 11/14//2023***
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1.0 PURPOSE

1.1 To identify the practices, procedures, and training necessary to safely climb trees for mission related activities within Wildlife Services (WS).

2.0 AUTHORITY

2.1 U.S. Department of Agriculture, Forest Service's "National Tree Climbing Guide" 2015.

2.2 Occupational Safety and Health Administration (OSHA) 29 CFR 1910 Subpart I (parts 132 to 140) "Personal Protective Equipment."

3.0 DEFINITIONS

3.1 Incorporated within the document as needed.

4.0 PROCEDURES

4.1 Introduction:

The WS Tree Climbing Program provides direction to protect employees while ascending, descending, and working aloft in trees by establishing specific procedures and practices. Climbing and working in trees demands specialized equipment and skills. The potential for a serious injury or fatal fall is always present, so employees must be trained and certified before they engage in tree climbing operations and activities.

Tree climbing is arduous, demanding work that requires upper body strength and

overall flexibility. Besides being physically fit, employees must be able to identify and compensate for any physical or mental condition that might temporarily impact their climbing ability.

Only WS employees who hold a valid tree climbing certification may engage in tree climbing. All tree climbers must be trained and certified before commencing related WS work activities. Tree climbers must use only the techniques and equipment they are certified to use.

4.2 Training

4.2.1 Training and Certification Requirements
The potential for a serious injury or fatal fall is always present. Employees shall be trained and certified in tree climbing and rescue procedures in accordance with US Forest Service standards for tree climber certifications. .

4.2.2 U.S. Forest Service (USFS) Tree Climber Certification
New tree climber employees shall be evaluated by a Certified Climbing Instructor in tree climbing, safety, and aerial rescue procedures before engaging in tree climbing operations and activities. All new WS climbers are required to be certified as a USDA Tree Climber through successful completion of the USDA/FS Tree Climber course.

Upon successful completion each WS Tree Climber will receive a certificate of completion and a certification card signed by the instructor which will be valid for a period of three years. Supervisors will then add the names of newly certified climbers to the US Forest Service national database.

Applicants for tree climbing certification must possess an American Red Cross First Aid Certification or equivalent and demonstrate the required knowledge and skills of the certification level for which they have applied. Trainees must pass an exam that demonstrates their knowledge of the following:

- Identifying, mitigating and/or reporting hazards associated with tree climbing work,
- Function, care, use and maintenance of tree climbing equipment.
- Ability to safely perform the following minimum requirements
  A. Successfully tie all task specific knots,
  B. Demonstrate proficiency in tree climbing using the three-point climbing technique, including installation of a lanyard and limbing-over on a task specific basis,
  C. Perform an aerial rescue using an approved rappel system.
- Training must be conducted by at least one certified Tree Climbing Instructor who may certify the trainee as a Tree Climber. Tree climbing certification is valid for three years, unless revoked earlier.

4.2.3 First Aid and CPR
All climbers shall be provided with current medical training equivalent to at least an American Red Cross basic first-aid course and are required to attain certification in CPR and first aid. These trainings do not replace the need to contact 911 in case of any medical emergency.

4.3 Preparations for Climbing

4.3.1 Preparations shall include obtaining any special training the assignment might require, discussing with other team members the best way to accomplish the job, thoroughly rehearsing climbing methods to be used, and preparing a job hazard analysis for each assignment.

4.3.2 Required Personal Protective Equipment
The following personal protective equipment is required for all climbing assignments:

1. Climbing harness.
2. Climbing helmet.
3. Long sleeved shirt and sturdy pants.
4. Eye protection.
5. Gloves are recommended, but not required for general climbing. Sturdy gloves are a must for any rappelling.
6. Logger-style boots with lug-type soles are appropriate for most tree climbing work. Soft-soled hiking boots, tennis shoes, and crepe-soled work boots may be used. When working with climbing spurs, wear boots that have suitable heels to keep the spurs in place and rigid arch supports to reduce fatigue and discomfort.
7. Hearing protection for power tool use.

4.3.3 Working as a Team
Two certified climbers make up the basic climbing team. One ground person can serve several climbers but must be able to always maintain visual contact. In heavy tree cover where visual contact may be obscured, then unassisted voice communication will be used to maintain contact with all climbers. Both members of the basic team may climb simultaneously, so long as both have quick descent capability, and remain within unassisted natural voice communication with each other. The team can also utilize additional non-climbers as ground personnel to provide support and facilitate unassisted voice communication among team climbers. All team climbers shall be qualified to perform every aspect of the climbing assignment to perform a rescue, if necessary. All team climbers shall have current medical training equivalent to at least an American Red Cross basic first-aid course. The team shall establish radio communications from the climbing site with the Supervisor, District office or other designated contact before climbing. All team climbers shall be completely equipped to climb and shall thoroughly rehearse the climbing methods and techniques they will use. Working as a team

includes the following:

1. Team members shall perform an equipment check on other team member's equipment before climbing.
2. All ground personnel shall remain alert while climbers are aloft.
3. All team members should remain alert to hazards in the tree and the environment, discussing potential problems as they arise.
4. The ground person should carefully watch the climber and communicate any problems; it is often easier for the ground person to identify hazards and recognize unsafe climbing practices than it is for the climber to do so.
5. The ground person should maintain verbal and visual contact with the climber.
6. Climbers shall be prepared at all times to perform a rescue or render first aid.
7. The ground person shall not be directly underneath the climber at any time unless first cleared by the climber to be there. Whenever a ground person is underneath a climber, the climber remains in an "at rest" position until the ground person is no longer there.

4.3.4 Climbing Teams must consist of at least two certified tree climbers for safety purposes. The tree climbing team must have all the basic safety equipment to accomplish assigned climbing project. Contact as described above must be always maintained between team members while engaging in climbing activities. Specialized equipment may be required depending on the nature of the assignment. Teams will take individual tree climbing equipment, data collection equipment for the areas they are assigned, cell phones (charged daily) and any other additional equipment as needed or assigned by the supervisor. Refer to equipment checklist in the appendix.

4.4 Hazard Assessment

4.4.1 Any number of hazards may prevent a tree from being climbed. Hazards are generally grouped into two categories: environmental hazards and tree hazards. The following lists of potential hazards represent a starting point for the focus of a hazard tree assessment. In special situations where hazards cannot be mitigated, consider seeking additional help from specialists or receiving additional training before performing any work. The climbing team must perform both a thorough environmental and tree hazard assessment before any tree is climbed. Remember, no tree is worth a human life.

4.4.2 Environmental Hazards

The climbing team must assess the environmental hazards at each tree and monitor the weather throughout the day for changes that could make climbing more hazardous. Never climb a tree under any of the following conditions unless properly mitigated in the job hazard analysis.

1. The **wind** speed exceeds 25 mph or the wind is blowing in gusts. In light winds, try to keep your back to the wind. Do treetop work first when conditions permit. If winds increase later, it may still be safe to work lower in the tree.
2. It is not fully daylight. **Visibility** is especially important late in the day when

fatigue is a factor. Do not start a tree climb that cannot be completed in full daylight.

3. Air **temperature** is low enough to create an unsafe condition. Be particularly aware of cold temperatures. Cold impairs dexterity, especially in the fingers, which can jeopardize your ability to accomplish tasks safely.
4. A **lightning** storm is close. If you are in a tree when a lightning storm appears imminent, descend as quickly and safely as possible.
5. A **powerline** is close enough to the tree that you, your equipment, or the tree branches could contact the powerline. Consider any tree suspect if a powerline is anywhere in the vicinity. DO NOT climb any tree that is closer than 10 feet from energized electrical conductors, unless qualified as a line clearance arborist.

4.4.3 Tree Hazards

Hazardous situations should be avoided as much as possible unless a specific need for climbing exists. A thorough tree hazard assessment is crucial for determining the extent of the hazard and the climber's ability to deal with it. Although trainee climbers can successfully compensate for many hazards, as the severity of the hazard increases so does the level of experience required. The type or severity of a hazard may warrant additional training, specialized equipment, or outside expertise.

When climbing, if you discover a hazard that was not spotted from the ground, or that appears to be more hazardous than you originally thought, descend immediately unless the hazard can be mitigated.

Check every tree thoroughly before the climb. Both team members shall walk around the tree and assess it for potential hazards. Many hazards can be compensated for easily, allowing the tree to be climbed safely. Other trees have severe hazards that preclude them from being climbed unless a special need exists, the climber is properly trained and equipped, and any hazards are mitigated. Climbers should familiarize themselves with species-specific characteristics which may prove hazardous.

The following hazards may prevent a tree from being climbed if it is not possible to compensate for them.

1. **Rain-, ice-, or snow-covered branches.** These branches pose slipping hazards that may affect climbing performance. Climbers may need to use a safety line or lanyard at all times for added safety.
2. **Moss and lichen.** Moss and lichen create a slippery climbing surface. This hazard is especially prevalent in the Northwest. Climbers may need to use a safety line or lanyard for added safety.
3. **Brittle limbs *caused by low temperatures*.** Use the same precautions you would use with any brittle limbs. If the temperature is too low to climb safely, then you should not be climbing.
4. **Tree species with brittle limbs.** When climbing species with brittle limbs be sure to install your climbing line or lanyard around the bole of the tree.
5. **Small-diameter boles and limbs.** Keep hands and feet as close to the bole as

possible. When climbing above the 4-inch diameter point in conifers, a safety line shall be used. A safety line may be used earlier in the climb for added safety.

6. **Steeply sloping limbs.** Always keep your hands and feet as close to the bole as possible. Wedge them close to the bole when you are using sloping limbs for support. If your hands or feet continually slip, consider climbing with your lanyard attached at all times or use a safety line for a belayed ascent. Exercise caution on trees with branches that slope upward. To avoid getting your feet stuck, do not use them for support. If these branches cannot be avoided, consider using tree steps or using webbing slings for steps.
7. **Damaged limbs.** Avoid the use of damaged limbs to support your weight.
8. **Branch stubs or dead branches.** Never use branch stubs or dead branches for support. Consider removal of dead branches while ascending the tree if there is a chance they might be used inadvertently while descending.
9. **Abnormally large amounts of branch mortality.** These conditions may indicate unsafe limbs and hidden rot. This is mainly a problem in conifers.
10. **Weak branch unions.** Weak branch unions are places where branches are not strongly attached to the tree. A weak union occurs when two or more branches of similar size grow so closely together that bark grows between the branches, inside the union. This is usually a problem with branches that are growing upright. The included bark weakens the branch union. The included bark may also act as a wedge and force the branch union to separate when loaded. Species such as elm and maple have a tendency to form upright branches, often producing weak branch unions. Weak branch unions also form after a tree or branch is tipped or topped (when the main stem or a large branch is cut at a right angle to the direction of growth, leaving a large branch stub). The stub inevitably decays, providing very poor support for new epicormic branches that usually develop along the cut branch. Inspect all branch unions at or below your tie-in point before choosing them to install your climbing line or lanyard.
11. **Poor tree architecture.** Poor architecture is a growth pattern that indicates weakness or structural imbalance. Trees with strange shapes are interesting to look at but may be structurally defective. Poor architecture often arises after many years of damage from storms, unusual growing conditions, improper pruning, topping, and other damage. A leaning tree may or may not be a hazard. An arborist knowledgeable about that tree species should examine leaning trees that might be a hazard.
12. **Forked boles and spiked top.** Unless the tree species naturally forks, do not climb above a forked bole. Treat any fork with suspicion, because the fork is potentially a weak point. Never climb into a dead or spiked top. Forks sometimes indicate an old, broken top. Frequently, they are associated with wood decay, which further weakens the area, making it unsafe for climbing. Most hardwood trees fork naturally, so a forked hardwood tree would not cause as much concern as a forked conifer.
13. **Cankers.** A canker is a localized area on the stem or branch of a tree, where the bark is sunken or missing. Wounding or disease causes cankers. Stems are more likely to break near the canker. A tree with a canker that encompasses more than half of the tree’s circumference may be hazardous even if exposed wood appears

sound.

14. **Cracks.** Deep splits through the bark that extend into the wood of the tree are extremely hazardous, because they indicate that the tree is failing. These trees should be evaluated by a person familiar with the species and climbed by certified climbers who are properly trained and equipped for the hazards associated with the job.
15. **Decay.** A decaying tree can be prone to failure. The presence of decay by itself does not indicate that the tree is hazardous. Advanced decay (wood that is soft, punky, or crumbly, or a cavity where wood is missing) can create a serious hazard. Signs of fungal activity, including mushrooms, conks, and brackets growing on root flares, stems, or branches indicate advanced decay. A tree usually decays from the inside out, eventually forming a cavity. Sound wood is added to the outside of the tree as it grows. Trees with sound outer wood shells may be relatively safe, but this depends on the ratio of sound to decayed wood and other defects that might be present. If decay is evident and you have doubts about the tree, avoid it. Arborists are best qualified to evaluate the safety of a decaying tree.
16. **Root problems.** Trees with root problems may fall without warning for any number of reasons, especially when the tree's leaves grow in summer, increasing the weight the tree must support. Besides decay, roots may have a number of other problems. They may have been severed; they may have been paved over; they may have been harmed when the soil grade was raised or lowered; or a car may have driven over or parked on top of them. Mounded soil near the base of the tree, twigs that have died back, deadwood in the crown, and leaves that are off color or smaller than normal often are symptoms associated with root problems. Because most defective roots are underground and out of sight, aboveground symptoms may serve as the best warning.
17. **Indications of root, butt, or bole rot.** The soundness of any tree with rot cannot be trusted. Indicators of rot include fruiting bodies of decay fungi, exposed wood that is decaying, and other indicators of internal wood decay. Wood is generally a strong material, but its strength is greatly reduced by decay. Some decay is obvious (for example, rotten wood in an exposed scar), but other decay may be hidden (for example, internal wood decay in a forked top).
18. **Loose bark.** Loose bark may peel off when grabbed for support or when spurs are used. In dead conifers, large sections of bark may break loose and fall, injuring a climber or damaging equipment. Certified climbers who are properly trained and equipped for the hazards associated with the job should do critical work in such trees.
19. **Dead wood.** Dead trees and large, dead branches are unpredictable and may fall at any time. Dead wood is often dry and brittle and cannot bend as a living tree or branch does. Dead branches or treetops that are already broken off ("hangers" or "widowmakers") are especially hazardous. Certified climbers who are properly trained and equipped for the hazards associated with the job should do critical work in such trees.
20. **Multiple defects.** Recognizing multiple defects in a tree is critical when evaluating the tree's potential to fail. Multiple defects that are touching or close to one another should be examined carefully. The combined potential of multiple defects can far

exceed the sum of the individual hazards considered separately. If more than one defect occurs on a main stem, you should assume that the tree is potentially hazardous.

21. **Large portions of other trees or snags lodged in the crown.** Trees or snags lodged in the crown of another tree may move or fall, striking the climber or pinning the climber in a tree. Tree climbing to remove these hazards, or to perform critical work in the tree, should be done by certified climbers who are properly trained and equipped for the hazards associated with the job.
22. **Bee, hornet, or wasp colonies.** Look for insect colonies in trees to be climbed or in trees adjacent to the one to be climbed. Climbing may disturb the colony. Often colonies cannot be seen from the ground. When you are climbing, always let your ground person know when you spot a colony. A can of bee and wasp spray that will stun bees, wasps, and hornets should be carried during high-risk seasons. Climbers allergic to insect stings should have the appropriate medication with them. The climbing team's first-aid kit should include an insect-sting kit, which may have to be purchased separately. Climbing to monitor or remove insect colonies should be performed only by certified climbers who are properly trained and equipped for the hazards associated with the job.
23. **Animals in the tree.** Unexpected encounters with wildlife in trees can cause enough commotion to startle a climber and create a hazardous situation. It is best to return to the tree at a later date and climb it when the animal is not present or to designate the tree as unsafe to climb without special training and precautions. Tree climbing to monitor animals, or for other animal-related activities, should be done by certified climbers who are familiar with the behavior of the animals being monitored, are properly equipped for the job, and are properly trained in the methods necessary to minimize and mitigate the associated hazards.

4.5 Equipment

4.5.1 Use of Climbing Equipment

A variety of equipment has been developed for tree climbing work or adapted from activities such as rock climbing and caving. The climbing assignment and personal preference largely dictate the equipment selected. This chapter contains information on recommended uses, advantages and disadvantages of equipment, procedures for use, and recommendations for care.

4.5.2 Care of Climbing Equipment.

Continue to check the condition of your equipment frequently during the climbing assignment. After the job, inspect the equipment, clean, and refurbish as needed so it is ready for the next assignment or for emergency use. Restrict equipment access to certified climbers only and use the equipment exclusively for tree climbing work. A locked storage area is advisable. Storage areas should be secure from rodents and chemicals—a must for rope, webbing, and harnesses. Clearly mark or tag all defective equipment to prevent further use and repair or take it out of service. Certified climbers should be responsible for all of their own climbing equipment. Keep manufacturers' equipment specifications and care

recommendations on file for ready access.

Equipment, especially ropes, webbing, and loops, should never be walked on or driven over. This kind of abuse causes damage in ways that are not always apparent and could cause failures.

Climbing equipment, especially life-safety ropes, shall not be left unattended in a tree. The equipment needs to be closely inspected before each use, and it cannot be if it is left in the tree. Tree sap, insects, animals, abrasion, sunlight, and rain affect climbing equipment, and equipment cannot be monitored or controlled when it is left in the tree. If a tree will be climbed more than once, a utility cord can be left in a position that allows climbing ropes to be easily put in place for future climbs.

When life-safety equipment shows significant wear, it should be taken out of service. Significant wear could be a frayed leg loop on a harness or a small crack in a gaff. Do not use any safety equipment that was involved in a significant fall. Harnesses, ropes, and any slings or webbing that helped arrest a fall can receive damage that is undetectable during inspection. The climbing components might fail the next time they are used. Do not paint metal equipment. Paint can hide defects that can cause failure.

All equipment used for climber life support shall meet or exceed ANSI, or European PPE Directive 89/686/EEC standards for breaking strength. This requirement is consistent with search and rescue requirements for a 15:1 safety margin. Haul lines should be capable of supporting items being hauled into the tree and lowered from the tree without exceeding their working-load limits.

Climbers shall ensure that climbing gear is in safe, always working order. Each climber is responsible for the care, storage and inspection of their own APHIS issued personal climbing gear. Inspections must be conducted before each climbing assignment and performed constantly throughout the day while climbing.

Full gear inspections shall be performed and documented prior to any climb. inspections shall be performed by another Certified Tree Climber who is not issued that gear. Inspectors must follow ANSI Z133 Safety Requirements and refer to the National Tree Climbing Guide regarding proper inspection, care and retirement of all climbing equipment.

4.5.3 Personal Protective Equipment (PPE)

Climbing helmets shall be worn during all climbing activities. Climbing helmets shall conform to ANSI Z89.1. Class E helmets shall be worn when working in proximity to electrical conductors.

- An approved tree climbing harness (saddle) shall be provided by the program
- Eye protection meeting the requirements of ANSI Z87.1 shall be worn at all times during climbing activities
- Appropriate footwear (per supervisory approval)

- Gloves are not required but are provided
- Thermal gloves will be provided for winter climbing
- Hearing protection mandatory while operating chainsaw (helmet mounted earmuffs or ear plugs are recommended)
- Approved chaps or chainsaw pants are required while operating a chainsaw (NOTE: chainsaws may only be used on the ground. Only handsaws are allowed up in a tree)

4.6 Knots

Climbers should know a few specific knots and their proper use, rather than a myriad of knots that could confuse them when it is time to use one. Many knots are useful in tree climbing work, but only a few task-specific knots are essential for any given climbing technique.

Always check and test every knot you tie and, when practical, secure it with a double overhand knot or other suitable safety knot. Practice knot tying at frequent intervals so correct tying becomes automatic. All knots must be properly dressed and set to function safely.

4.7 Tree Entry Methods

Only those techniques which climbers have been trained and are proficient at shall be used for tree climbing methods.

4.9 Rescue

The basic tree climbing team is composed of two persons, so both team members must be certified climbers qualified to perform the climbing assignment. All certified climbers shall be equipped and trained to render emergency care if a climber becomes incapacitated while in a tree. Training includes first aid and techniques to secure an injured climber in a comfortable position in the tree and to remove a climber from the tree.

Climbing teams should be prepared for potential problems on any assignment. They should sign out with the local unit and carry portable radios or cell phones. Climbers should also be aware of other climbing teams in the area and their general location.

Climbers should note the legal description of their work area, as well as detailed access information, so they can provide accurate directions in an emergency. If immediate contact with the local unit or dispatch office cannot be established from the job site, a contingency plan should be developed to summon emergency help, or the climb at that job site shall be abandoned.

During a rescue, the potential for suspension trauma should be considered.

Suspension trauma can occur when a person is suspended vertically, such as from the chest or back D-ring attachment point of a fall protection harness. Blood begins to pool in the legs and the heart must work harder to pump blood to the brain. If the heart cannot keep up, it will slow down, leading to a loss of consciousness. Death can occur in as little as five minutes. If an incapacitated climber is suspended vertically and unable to correct the situation, the assisting climber needs to reach the incapacitated climber and correct their position as quickly as practical. Simply bending the legs at the knees to form a sitting position will solve the problem. If the incapacitated climber is unconscious, do not immediately move the incapacitated climber to a horizontal position. If suspension trauma is occurring, the sudden flow of blood to the brain can be fatal. Keep the incapacitated climber in a seated or reclining position for a period of time before repositioning to a prone position.

The main thing in choosing a method for rescue is to settle on a few basic methods that require the least amount of gear and practice them until everyone on the climbing crew can do the rescues quickly and safely. For the minimalist, it should be possible to do any rescues with no special gear except for a few carabiners and some scraps of rope or webbing. The time to develop these skills is before something bad happens, not after!

4.9.1 Rescue Equipment

Equipment to aid an incapacitated climber in a tree consists of the basic equipment described in the US Forest Service Tree Climbing Manual, Chapter 3, plus additional rescue and first-aid items.

4.10 Responsibilities

4.10.1 Tree Climber(s) Responsibilities

In addition to following procedures for survey functions and data collection, each Tree Climber shall:

- Maintain knowledge of current industry practices and proficiency for the type of tree climbing work to be performed. Maintain a thorough working knowledge of, and adherence to, US Forest Service Tree Climbing Program policy, techniques, and technical guidelines.
- Plan climbing operations and activities in accordance with the requirements set out in this section and the technical guidelines in the National Tree Climbing Guide
- Ensure that safety and emergency equipment is operable, in good condition, and accessible at climbing sites prior to each climb.
- Suspend tree climbing operations and activities that are considered unsafe or unwise.
- It is the individual climber’s responsibility to complete a full tree hazard and environmental hazard assessment and determine whether a tree is safe enough to conduct all assigned climbing duties.
- Supervisors may withdraw a climber’s certification if an employee is found to be physically or mentally unable to climb safely. It is also the responsibility of the

employee to notify the supervisor when they feel that they are unable to climb.

- Supervisors should promptly withdraw a climber's certification or remove the climber from climbing duties when the climber does not follow requirements for PPE. Climbing certifications can be withdrawn at the discretion of the supervisor for any length of time. If an employee is found to be physically or mentally unable to climb safely, or exhibits unsafe climbing habits, the employee shall be removed from climbing duties immediately.
- CPR/First Aid Recertification every 2 years.
- USFS Climber Recertification every 3 years.

4.11 Reporting Safety Incidences

Employees who become injured during their tour of duty must seek medical attention immediately if it is warranted. The employee is responsible for utilizing the chain-of-command to report their incident to a supervisor who in turn will submit the APHIS First Report and provide appropriate CA forms to initiate any necessary OWCP procedures.

5.0 ATTACHMENTS

Attachment 1: Equipment Checklist
Attachment 2: Inspection Log
Attachment 3: Job Hazard Assessment

Attachment 1: Equipment Checklist

Tree climbing equipment shall be issued to every employee prior to engaging in climbing activities. Supervisors will ensure that all issued gear meets or exceeds ANSI Z133 standards for personal protection equipment. A complete gear inventory will be maintained for each individual climber indicating quantity, condition and date issued.

Equipment Checklist

Individual Tree Climbing Equipment Additional Items

- Harness
- Climbing line (120 foot minimum)
- Rope bag
- Helmet (class E when required)
- Lanyard
- Carabineers (4 minimum)
- Friction hitch cordage/devices
- Slack tending pulley
- Rescue 8
- Throw bag with line
- Friction saver
- Handsaw
- Eye protection
- Hearing protection (when required)
- Gloves
- Ditty bag or other pouch on harness for tools
- Pocket knife
- Cell phone
- Webbing slings (3 minimum)
- Rescue kit with climbing spurs