Company Online Training Manual – 2026

This Training Manual is mandatory for all employees of Torrent Silviculture to familiarize themselves with and demonstrate an understanding of through an online quiz in which employees must score 80% or higher. Failure to demonstrate an understanding of this material will result in the suspension of employment until further training has been administered. This manual was revised in 2026 by senior management members of the company.

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Mandatory Company PPE

All employees at Torrent Silviculture are subject to the following mandatory Personal Protective Equipment (PPE). These standards were created by Work Safe BC, as well as the BC Forest Safety Council. The following PPE is always required during any work activities:

1. High Visibility Clothing, such as a high-vis vest, long sleeve, or straps.
2. A whistle.
3. Gloves.
4. Sturdy, ankle supporting boots.
5. A hard hat / climbing helmet *with* a chin strap (mandatory only for work in burnt understory blocks)

All employees are expected to arrive ready to work with their own PPE. Failure to arrive to work without necessary PPE will result in temporary suspension until requirements have been met. Torrent has climbing helmets for sale if necessary and will also provide 1 high-vis construction work-site style vest to employees if necessary.

Workplace Bullying and Harassment

Company Policy

This Company will not tolerate workplace bullying and harassment and in order to ensure and protect the health and safety of its employees, this Company recognizes bullying and harassment as a workplace hazard and will apply prevention steps.

Definition: Bullying and harassment is behavior that humiliates and/or intimidates and can come from co-workers, supervisors, employers and external sources like clients or contractors.

We will treat bullying and harassment as a workplace health and safety deficiency and once instances have been reported, all cases will be investigated to mitigate any real hazards through one of many options available from counseling and employee assistance programs to progressive discipline.

Examples Of Bullying and Harassment

Workplace bullying and/ or harassment is behaviour from another worker be it a member of management or a co-worker that humiliates or intimidates. This can look like:

- Verbal aggression or name-calling
- Vandalizing personal belongings
- Sabotaging work

- Spreading malicious rumours
- Humiliating hazing practices/ hazing
- Aggressive/ threatening gestures
- Cyber-bullying
- Passive-Aggressive comments
- Physical threats and/or violence

What is NOT bullying and harassment?

- Expressing differences of opinion
- Offering constructive feedback
- Making a legitimate complaint about another worker's conduct
- Reasonable critiques and disciplinary actions from upper management, including:

  - Job duties and work to be performed
  - Workloads and deadlines
  - Layoffs, transfers, promotions, and reorganizations
  - Work instruction, supervision, or feedback
  - Work evaluation
  - Performance management
  - Discipline, suspensions, or terminations

We recognize that our employees come from different walks of life and may have different opinions on real life matters. We encourage respectful dialogue amongst workers about said issues, so long as it does not result in any of the aforementioned behaviours.

Bullying and harassment can sometimes be overt and easily distinguishable, and in other cases it can be discrete and hidden. If you observe your co-worker performing their daily tasks distractedly, change in usual demeanor, loss in productivity, and/or or agitated or dejected behavior, alert a trusted supervisor so they can investigate.

If you are witnessing an episode of bullying and harassment, and feel comfortable to do so, tell the bully to stop. Sometimes confronting an alleged bully can cause their behavior towards the target to get worse, but other times it makes that person aware that their actions will not be tolerated, which results in a change in behavior.

If the situation is violent, or the aggressor is extremely agitated, seek help from a bystander and alert the camp supervisor or camp safety person immediately. It is not up to the bystander to discipline the antagonist, however each situation is nuanced, and if it seems appropriate, consider making a statement about how harmful speech. rude jokes, and/or belittling a co-worker will not be tolerated.

When you report an incident of bullying to a supervisor, they are obligated to:

1. Take the report seriously and investigate the incident.
2. Stand behind their anti-bullying policy commitment.
3. Take all reasonable actions to ensure the bullying does not continue.
4. Explore additional training resources to better educate the aggressor on the companies bullying and harassment policies, if the situation calls for it.

Each situation is nuanced; however persistent bullying will not be tolerated in our workplace, and will likely result in an employee's termination from the company.

Reporting & Disclosing

There are a few methods available to an employee when it comes to reporting and disclosing bullying, harassment, or an assault, on behalf of yourself or a co-worker.

We encourage our employees to reach out to the camp supervisor, the camp first-aider / safety person, the JOHSC member on their crew, or their own crew boss if they wish to file a report. A verbal report to anyone other than the camp supervisor will always lead to an investigation from the camp supervisor even if they were not the receiver of the initial complaint.

Disclosing is also an available option. A disclosure differs from a report in that it is not accompanied by the same formal paperwork or a full investigation. It is a means to bring attention to someone or something so that supervisors can be aware and especially diligent and observant of ongoing harmful behavior. However, if the disclosure involves criminal activity, it is likely that it will be accompanied by a formal investigation.

Each camp has an anonymous lock box in the main mess tent with the intended purpose to serve as an anonymous reporting system. Only the supervisor has the key, and it is checked once a shift. This is a form of disclosure.

The supervisor and/or safety persons phone number is also available to the camp to submit a report or disclosure via text message if the employee is concerned with maintaining their anonymity.

We highly encourage reporting and disclosing in our camps and strive to ensure the that the anonymity of the person filing the complaint is protected whenever possible. In most situations the supervisor will work with the plaintiff to come up with a consequence that matches the severity of the claim and helps the victim feel safe and supported.

Worker's Compensation & Injury Management

Employees in British Columbia may be entitled to Worker's Compensation should they become injured at the workplace and require time off to recover. This is applicable to all employees who are Canadian citizens, even if your permanent residence is outside of the province. You can find more information on this through the BC Worker's Compensation Act here:

https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/19001_02

All camps have a dedicated first-aid attendant and a dedicated first-aid room (typically attached to the shower trailer). Should you become injured at work in a non-emergency situation, is the responsibility of the employee to report this injury to the dedicated first-aid person. Failure to do so will likely result in a Worker's Compensation claim becoming contested or denied. In most situations, Torrent does not offer modified duties for injured workers. We strongly encourage injured workers to take the period to completely rest and recover. We encourage workers to file a Worker's Compensations Claim with Work Safe BC if days missed due to injury recovery become substantial.

To be eligible for a claim, the following steps ***MUST*** be taken:

1. The injury must be reported to the camp first-aid attendant as well as your direct supervisor (crew boss), and a company first-aid report must be filed and signed off on by the employee and first-aid attendant.

2. You must alert the first-aid person and the office at office@torrentsilviculture.com that you intend to file a Worker's Compensation claim. This is to be done within days of an injury once it becomes apparent that the injury is turning into a lost time event.

3. The office will submit a Form 7 to Work Safe BC on the employee's behalf. The employee must also submit a Form 6a with the first aid attendant, which details the events of the injury and the care given from the perspective of the employee.

Again, if the employee fails to adequately report their injury to the camp first-aid attendant, or their supervisor, and no paperwork is completed, it is likely that the claim will be contested by the company or denied.

Below is a section of text from the Worker's Compensation Act, Division 4, which highlights the responsibilities of employers, employees, and supervisors. These are legal obligations that all persons in the workplace must abide by. Failure to comply with these obligations from either party could impact the claim's efficacy.

General duties of employers

21 (1)Every employer must

(a) ensure the health and safety of

(i) all workers working for that employer, and

(ii) any other workers present at a workplace at which that employer's work is being carried out, and

(b) comply with the OHS provisions, the regulations and any applicable orders.

(2)Without limiting subsection (1), an employer must

(a) remedy any workplace conditions that are hazardous to the health or safety of the employer's workers,

(b) ensure that the employer's workers

(i) are made aware of all known or reasonably foreseeable health or safety hazards to which they are likely to be exposed by their work,

(ii) comply with the OHS provisions, the regulations and any applicable orders, and

(iii) are made aware of their rights and duties under the OHS provisions and the regulations,

(c) establish occupational health and safety policies and programs in accordance with the regulations,

(d) provide and maintain in good condition protective equipment, devices and clothing as required by regulation and ensure that these are used by the employer's workers,

(e) provide to the employer's workers the information, instruction, training and supervision necessary to ensure the health and safety of those workers in carrying out their work and to ensure the health and safety of other workers at the workplace,

(f) make a copy of this Act and the regulations readily available for review by the employer's workers and, at each workplace where workers of the employer are regularly employed, post and keep posted a notice advising where the copy is available for review,

(g) consult and cooperate with the joint committees and worker health and safety representatives for workplaces of the employer, and

(h) cooperate with the Board, officers of the Board and any other person carrying out a duty under the OHS provisions or the regulations.

General duties of workers

22 (1)Every worker must

(a) take reasonable care to protect the worker's health and safety and the health and safety of other persons who may be affected by the worker's acts or omissions at work, and

(b) comply with the OHS provisions, the regulations and any applicable orders.

(2)Without limiting subsection (1), a worker must

(a) carry out the worker's work in accordance with established safe work procedures as required by the OHS provisions and the regulations,

(b) use or wear protective equipment, devices and clothing as required by the regulations,

(c) not engage in horseplay or similar conduct that may endanger the worker or any other person,

(d) ensure that the worker's ability to work without risk to that worker's health or safety, or to the health or safety of any other person, is not impaired by alcohol, drugs or other causes,

(e) report to the supervisor or employer

(i) any contravention of the OHS provisions, the regulations or an applicable order of which the worker is aware, and

(ii) the absence of or defect in any protective equipment, device or clothing, or the existence of any other hazard, that the worker considers is likely to endanger the worker or any other person,

(f) cooperate with the joint committee or worker health and safety representative for the workplace, and

(g) cooperate with the Board, officers of the Board and any other person carrying out a duty under the OHS provisions or the regulations.

General duties of supervisors

23 (1)Every supervisor must

(a) ensure the health and safety of all workers under the direct supervision of the supervisor,

(b) be knowledgeable about the OHS provisions and those regulations applicable to the work being supervised, and

(c) comply with the OHS provisions, the regulations and any applicable orders.

(2)Without limiting subsection (1), a supervisor must

(a) ensure that the workers under the supervisor's direct supervision

(i) are made aware of all known or reasonably foreseeable health or safety hazards in the area where they work, and

(ii) comply with the OHS provisions, the regulations and any applicable orders,

(b) consult and cooperate with the joint committee or worker health and safety representative for the workplace, and

(c) cooperate with the Board, officers of the Board and any other person carrying out a duty under the OHS provisions or the regulations

Silviculture Workers' Rights

Every industry in British Columbia comes with its own set of workers' rights and employment standards. For more information on the rights of Silviculture Worker's specifically, please visit: https://www2.gov.bc.ca/gov/content/employment-business/employment-standards-advice/employment-standards/hiring/silviculture-workers

Below is a list of general facts, worker's rights, and our companies' policies on some of these subjects.

Wages – Minimum wage in British Columbia is $17.85/hour (since June 1st, 2025). All workers are entitled to this minimum compensation. Tree Planting is a piece rate / production-based pay system. If you are a new worker in training, you may not initially be meeting this threshold. It is the company's obligation to top new employees up to ensure they are meeting minimum wage standards. Minimum wage calculations for piece work are calculated over an entire pay period (days worked in a 14 day pay period), not daily.

Time Off (sourced verbatim from Silviculture Worker's Online Resource) -

The work day starts when workers leave the camp or pick-up point and ends when they return. Employers must provide a schedule.

Schedules are no more than five working days followed by a day off. Each month, workers must get: At least two days off in a row **OR** eight non-consecutive days off.

Vacation Pay - An employer can choose to add an extra 4% of gross wages (6% after five consecutive years of employment) in place of vacation pay. This means that workers don't earn vacation time off. This amount is paid on total wages, which **includes** statutory holiday pay.

If this amount isn't paid on every pay cheque, employers must follow the regular rules for vacation time and pay.

Right To Refuse - In British Columbia, workers have a legal right to refuse work they believe is "undue hazard" unsafe to themselves or others under the *Workers' Compensation Act*. The process requires immediately reporting the concern to a supervisor, who must investigate, and if unresolved, it can be escalated to WorkSafeBC for a final ruling. Employers cannot retaliate against workers for refusing unsafe work. There are 4 steps / actions when refusing unsafe work:

1. **Report the Hazard:** Immediately tell your supervisor, employer, or union representative that you are refusing the work and explain why.
2. **Investigation:** The supervisor must immediately investigate and fix the issue or explain why it is safe.
3. **No Resolution:** If you still believe the work is unsafe after the investigation, you continue to refuse, and the employer must investigate again with a worker representative, such as a health and safety committee member or union representative.
4. **WorkSafeBC Involvement:** If the issue remains unresolved, you can report it to WorkSafeBC, who will investigate and issue a final decision.

JOHSC

The JOHSC is an acronym which stands for Joint Occupational Health and Safety Committee. This is a requirement in all Torrent Silviculture camps and serves as a platform for workers and management to discuss health and safety concerns in the workplace, review recent incidents and injuries, and bring forth concerns from employees to management that may have been overlooked.

Division 5 of the Worker's Compensation Act states:

General requirement for employer to establish joint committee

31 An employer must establish and maintain a joint health and safety committee

(a) in each workplace where 20 or more workers of the employer are regularly employed, and

(b) in any other workplace for which a joint committee is required by order.

Membership of joint committee

33 A joint committee for a workplace must be established in accordance with the following:

(a) it must have at least 4 members or, if a greater number of members is required by regulation, that greater number.

(b) it must consist of worker representatives and employer representatives;

(c) at least half the members must be worker representatives.

(d) it must have 2 co-chairs, one selected by the worker representatives and the other selected by the employer representatives.

Torrent's JOHSC typically consists of the camp Supervisor, the camp designated first-aider, all crew bosses, and 1-2 members of each crew, based on crew size. Crews of 9 or larger will have 2 worker representatives, and crews of 6 will have 1 worker representative. The JOHSC may be called together for its regular meeting, and/or upon a major incident or health concern (such as a vehicle incident, or upset working conditions caused by a nearby wildfire) to discuss options and corrective actions for the camp. The committee is not exclusive, any employee who is interested in participating in the meeting is allowed. JOHSC members are elected before the season begins and participate in an online training module developed by Work Safe BC. Members are introduced at the camp Orientation and can be a good resource and advocate for employees who feel intimidated approaching management themselves about a safety concern.

Emergency Preparedness & Procedures

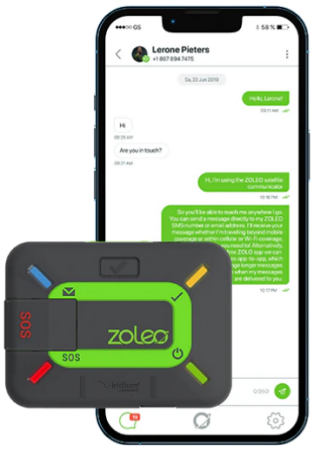
Torrent Silviculture is committed to meeting and exceeding the first aid and emergency preparedness rules and regulations determined by the BC government. Below are our company's guidelines for emergency preparedness.

1. All crew bosses are required to hold an Advanced First-Aid ticket (FKA OFA 3), unless unusual circumstances occur, and otherwise are obliged to hire a planter with a ticket.
2. All primary crew drivers are required to have a basic First-Aid ticket (FKA OFA 1) as well as a Transportation Endorsement Ticket.
3. All canopies will be equipped with a stretcher, and all crew-boss driven trucks will have an Advanced first aid jump kit (including oxygen) with the stretcher.
4. Every secondary crew vehicle is equipped with a basic first-aid kit, all trucks have planter access kits readily available with band aids, alcohol wipes, saline, and tweezers.
5. Each camp has at least one MTC (Mobile Treatment Center) which is parked at a centralized location between crews each day, as determined by the supervisor.
6. Crews with more than 9 workers total will have a personally dedicated MTC to go out daily.
7. Each camp has a designated first-aid room (typically attached to the shower trailer), which meets regulation standards. Workers are not allowed to enter this room unless accompanied by the first-aid attendant.
8. A camp-wide emergency packaging drill is performed at the pre-season orientation so employees can familiarize themselves with equipment before the first day of work.

9. Employees are obligated to report any allergies or pre-existing health conditions in their online employee package, and directly to the kitchen and first-aid staff.
10. A risk assessment is filled out by the camp supervisor for every block. When a crew arrives on a new block the Crew Boss will review the risk assessment with all employees as part of block orientation.
11. A paper copy of the ERP (Emergency Response Plan) is available in every truck. This is a document which guides employees on how to deal with / who to contact in the event of an emergency.
12. A ZOLEO Device is given to each crew boss and member of support staff. This is a satellite messaging device which can also directly contact emergency helicopter support. All staff are trained and familiar the device, and a few planters from each crew are encouraged to learn the device as well.
13. Employees will be trained and tested with several emergency drills throughout the season. The first typically being a wind-evacuation drill. Other examples include emergency extractions with a stretcher, as well as wildfire intervention and evacuation.

Mustering

In the event of an emergency, crews will muster. As a company rule, three long whistles or horn blasts indicate that employees must meet at the muster station identified in the block or camp orientation. Frantic honks or whistle blows indicate that a co-worker needs assistance, and one should head towards the sound. During an evacuation, employees could be significantly spread out, it is important to relay the whistle blasts to other workers with your own whistle, instead of just responding to the call.

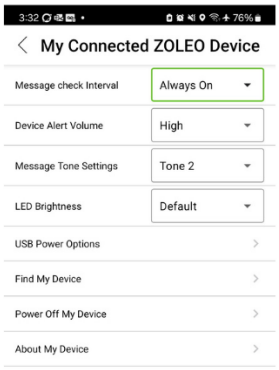


How to use our Zoleo communication device!

Every crew boss and management member in this camp has one. In an emergency it is vital to know how to use it to communicste back to camp and to emergency response. Relevant information on your location can be found on the Emergency Response Plan (orange sheet) and the Avenza block map. It takes a standard micro-usb charger and works by sending messages via satellite via the app on that phone. The SOS function calls a helicopter directly and can be engaged WITHOUT BEING CONNECTED TO A PHONE. HIT SOS IN A SERIOUS EMERGENCY FIRST BY POINTING TO THE SKY AND HOLDING FOR 3 SECONDS.

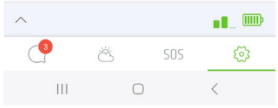
Step 1: Turn on - power button is located on side of device. Connect to phone via Bluetooth settings in phone. Sometimes an additional step is required within the app itself to confirm the device. Sometimes it will ask you for a pin - use 1234. Note: This device is not compatible with just any cell phone. When you are out of service it must be your crew bosses phone that you are connecting to the device. The device will make a cheerful beeping sound and flash green when turned on & connected properly.

Step 2: Locate Zoleo app on crew bosses phone. To send a message press on the green conversation bubble in the bottom right hand side of the app. At the bottom of the application page, there will be 3 signal bars which tell you if you are connecting to satellite. You may need to spend a minute positoning the device towards the sky to get reception.



Step 3: Having a conversation - when having a conversation with someone, you must go to settings > my connected Zoleo device > and change the "message check interval" from periodic to always on - this allows you to communicate in real time. Otherwise you will receive a every 12 minutes. When your message has been delivered it will beep and one check mark will appear below it. Once it has been received and red two check marks will appear beneath it.

Other notes: When the SOS button has been engaged the device will flash rainbow colours. The helicopter company will still need additional information once SOS is deployed.



Contacts in the Zoleo app are linked directly to contacts in the phone. Green contacts in the contact list mean those contacts also have registered Zoleo devices.

Dangerous Trees & Working in Burnt Understory Blocks

Many of Torrent Silviculture's Tree Planting Operations take place in burnt understory blocks. From a Danger Tree perspective, these blocks pose the greatest risk of a dangerous tree incident and require a vigorous Danger Tree Assessment (at LOD1) before work activities begin. The company believes that another large mitigation against a dangerous tree incident is worker education and training.

All employees at Torrent are required to take the BC Forest Safety Council's course on Danger Tree Awareness as mandatory training, which goes into more specific detail about danger trees.

PPE – All employees must wear a hard hat or climbing helmet with a chin strap when working in burnt understory blocks, as well as high-visibility clothing, vest, or straps.

Definitions:

Burnt Understory: Forested areas which have been previously burnt in a recent (within 3-10 years) wildfire, and have been selected for re-forestation *without* being logged. Therefore, the block is comprised of an indefinite amount of mature standing burnt timber, which is dead, but not yet significantly decaying. Planting activities often take place directly underneath the burnt stem.

Danger Tree: In British Columbia, a dangerous tree is defined under the Occupational Health and Safety Regulation (Section 26.1) as any tree (live or dead) that poses a hazard to workers due to factors like, but not limited to, severe lean, structural damage, overhead dangers, or root system decay. These trees, which frequently result from disturbances like fire or disease, require assessment when they threaten worker safety in forestry operations.

Suspect Tree: A tree which does not meet the criteria to be classified as immediately dangerous, however possess characteristics which make the tree suspicious and / or subject to imminent further decay or instability.

Danger Tree Assessment: An in-house assessment done for every block (burnt understory, and conventional cut blocks) in which a qualified assessor has thoroughly walked the planting area, documented hazardous trees, and filled out the required report work to demonstrate the work has met the standard determined by the client.

Characteristics of A Dangerous Tree

A tree (live or dead, regardless of size) can be a hazard to a worker due to:

- Its location or lean
- Its physical damage
- Overhead conditions

- Deterioration of its limbs, stems, or root systems
- Any combination of the above

Indicators that a tree may be hazardous include:

- Conks or mushrooms (indicating a rotten inner core or root system)
- Dead Limbs (condition, size, and distance from ground are things to consider when assessing a dead limb)
- Hazardous Tree Top (a broken top such as a snag, or a forked or split top, or an intact but visibly dead top are all considered hazardous)
- Thick Sloughing Bark (this is common in burnt understories, as well as Aspen patches in wet areas)
- Split Trunk
- Significantly burnt root system / unstable base of tree
- Shallowly rooted conifers in previously wet areas of forest

Wind Protocols In Burnt Understory Blocks

When planting blocks are assessed, they are assessed under the criteria for Level of Disturbance 1. This does not account for increased wind activity. Wind activity can be sudden and unpredictable at times, especially when working in high-elevation areas. As a rule, planting operations for burnt understories cease once wind speeds hit 30km/h. *However**,*** each situation has its own considerations and nuances, one area of the block may be hit with wind where another might not. Perhaps your piece is situated in a former wet land where the trees are rooted more shallowly and there is more evidence of blow down. The purpose of this training is to help you understand that when it comes to wind safety in burnt understories, ***you are in charge of your own safety as much as your crew boss.*** An employee does not need to wait for their crew bosses call to evacuate if they suspect that wind conditions are creating an unsafe environment in their area of the block. Evacuate to nearby designated safe zone if available, or the truck, and contact your supervisor via the radio once you are safe.

If you are struggling to determine if the wind poses a risk in your work area, consider the following wind speed indicators:

- Low (<10km/hr)- Leaves and small twigs in consistent motion. Flagging tape floats lightly with wind.

- Moderate (10-20km/hr, gusts >30km/hr)- Small trees & vegetation sway consistently. Paper items would be difficult to hold. Trees may make consistent creaking sounds.

- High (>20km/hr, gusts >40km/hr)- Mature trees in motion (look at top of stem), clouds moving rapidly, rain blowing sideways, flagging tape parallel with wind, loud consistent creaking sounds free trees & wind whistling between.

Keep in mind that wind activity is always greater at the crown of the tree and might not be felt at ground level. Always pay attention to what the tops of the tree are doing as they are the most likely to break or cause an uproot, and cause severe injury.

The **Beaufort Scale** is a measure of wind speed using visual cues and can also be helpful for determining wind speeds in remote forests. Forces 3 – 6 are the most considered for planting operations. Shut down speeds are generally at force 5.

Force	Wind Speed (km/hr)	Descriptive Term	Effects Observed on Land
0	<1	Calm	Smoke rises vertically.
1	1-5	Light Air	Direction of wind shown by smoke drift, but not wind vanes.
2	6-11	Light Breeze	Wind felt on face. Leaves rustle. Ordinary vane moved by wind.
3	12-19	Gentle Breeze	Leaves and small twigs in constant motion. Wind extends a light flag.
4	20-28	Moderate Breeze	Raises dust and loose paper. Small branches are moved.
5	29-38	Fresh Breeze	Small trees with leaves begin to sway. Crested wavelets form on inland waters.
6	39-49	Strong Breeze	Large branches in motion. Whistling heard in telephone wires. Umbrellas used with difficulty.
7	50-61	Near Gale	Whole trees in motion. Inconvenience felt in walking against wind.
8	62-74	Gale	Breaks twigs off trees. Generally impedes progress. Walking into wind almost impossible.
9	75-88	Strong Gale	Slight structural damage occurs, e.g. roofing shingles may become loose or blow off.
10	89-102	Storm	Trees Uprooted. Considerable structural damage occurs.
11	103-117	Violent Storm	Widespread damage.
12	118-133	Hurricane	Rare. Severe widespread damage to vegetation and significant structural damage possible.

Wildlife Behaviour, Safety Precautions, and Interventions

It is not uncommon to encounter black bears working in remote wilderness locations, such as silviculture blocks. While it is less common, run-ins with grizzly bears and cougars are also possible. The following information describes some common habits of each species, and steps one should take if they encounter wildlife.

It is important to be able to distinguish between black bears and grizzly bears. Black bears are extremely common in the areas Torrent commonly works in. Keep in mind black bears are can also be brown, or cinnamon coloured, so do not rely solely on colour to determine between the two. Below is image of different black bears.

Working Amongst Black Bears

A necessary precaution to take when working in bear territory is to never leave food or garbage amongst your work area. All garbage and food scraps must be packed out of the block daily. Other precautions one might consider are:

- Wearing a bear bell.
- Carrying bear spray.
- Playing music or singing at a volume where you are still able to pay attention to your surroundings however you can also alert nearby wildlife of your presence.
- Being aware of your surroundings and recognizing fresh and / or excessive bear droppings.
- Reporting to your supervisor and exiting the area promptly if you encounter a bear den, or a fresh kill.

Common Habits of Black Bears

- A black bear is typically easily frightened by humans and generally will run away if noticed and intimidated.
- If a bear is used to human food, or sick, it may become curious, bold, or aggressive.
- If the bear is a mother with cubs, it will often be territorial rather than docile.
- The bear may be timid, but curious upon an encounter. This does not necessarily mean it is going to be aggressive.
- Initially the bear may stand on its hind legs to identify you. Bears have poor eyesight but a good sense of smell.

Encountering A Black Bear

If you encounter a bear, the first thing you must do is resist the urge to flee. Attempt to remain calm, never turn your back and run away. Next, proceed to:

1. Back away or walk away slowly from the bear. Continue to observe its behavior, but do not make eye contact.
2. Make noise, appear large and intimidating. This may look like waving your arms above your head and yelling “Woah Bear.” This can also alert someone working nearby that you need help.
3. Potentially offer the bear a distraction by dropping your planting bags or leaving your back bag water bottle on the ground.
4. Continue to escape the area with the idea of getting to the main road or you neighbour’s piece, however, make sure you are leaving a wide berth between you and bear and not intersecting its path.

An Attacking Bear

It is a rare occasion; however a bold bear may bluff charge you. The best response to this is to hold your ground and *do not run*. Generally, they will attempt this once or twice and then run the other direction if you remain un-intimidated.

If it is an aggressive bear, it may also snap its jaws, lower its head, flatten its ears, and/or make growling and 'woofing sounds' whilst approaching you.

If you are in an encounter with an aggressive bear, do your best to make noise an alert surrounding workers that you need help. Do not retreat, run, or climb a tree. Your best defence against a black bear attack is fighting back with your shovel, a large rock, or your body. Aim for sensitive body parts such as the eyes, nose, and ears.

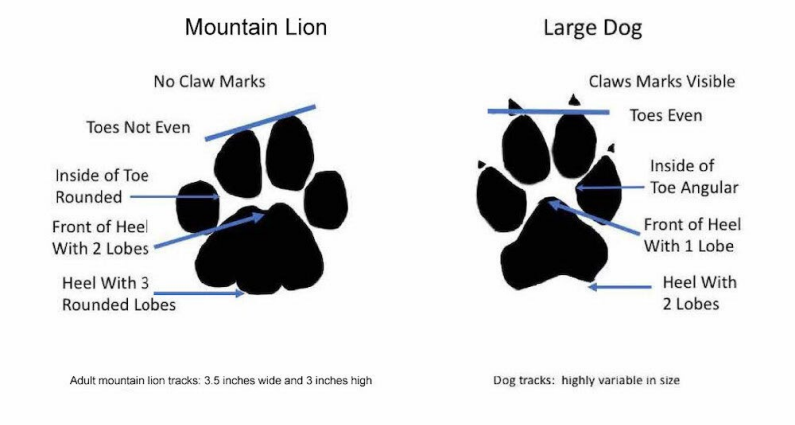
If it is a grizzly bear attack your response will be different:

- Do not stand your ground or attempt to fight back.
- Play dead. Assume the 'cannonball' position with hands clasped behind the neck and face buried in the knees.
- Do not move until the bear gives up and leaves the area.
- If circumstances allow, consider climbing a tree, grizzly bears (not black bears) are not great tree climbers.

<u>Cougar Behaviour & Interventions</u>

Cougar encounters are extremely rare but become more likely when working in high elevation and mountainous regions. They hunt by stalking and observing from high and camouflaged vantage points. If you have come in direct contact with a cougar, it is likely they are aggressive and have been observing you for a while. The best defense one can have from cougars is recognizing cougar activity in the area by observing your surroundings. Cougars locate their dens on ledges, in tree hollows on steep slopes, under fallen logs and in between rocks, keep their dens free of bones and other litter. They can have ranges of up to 300 square kms and may roam up to 80 kms in a single day.

Pay attention for Cougar prints in the area, as well as scat, which is often pale in colour, and very fibrous, potentially with small bones and hair throughout.



Another tell tale sign is narrow pathways throughout vegetation and/or tall grasses leading up to bluffs or rocks. If you have a suspition there has been recent cougar activity in your piece leave the area, and alert your supervisor.

If you encounter a stalking or attacking cougar do not run; instead, stand your ground, make yourself look large, and act aggressively. *Maintain direct eye contact*, shout firmly, and slowly back away to safety. If it approaches, throw rocks, sticks, your shovel, or your fists and feet, and fight back if attacked.

Tree Planting Ergonomics & Injury Prevention

Every employee has their own planting technique that they've developed throughout their planting career. There is not a one size fits all technique guide for anyone. However, there are common places and causes of injuries observed in planters that can often be traced to bad form or technique, or ill-fitting equipment. This section will focus on general techniques, equipment, and general information about planting. Parts of this section has been sourced from the Free

portion of Kerri Dunsmore's online for purchase program titled 'Pre-Season Fitness For Tree Planters'. https://momentumtreeplanting.thinkific.com/courses/InjuryPrevention10weekfitness

General Planting Facts

- Tree Planters commonly burn about 5,000–6,000 calories a day, potentially up to 7,000 - 8,000 calories a day for high performing planters, which is the caloric output of 2.5 marathons.
- Tree Planters require a daily intake of 3L of water at minimum, up to 10L depending on conditions. The addition of salt and/or electrolytes into a worker's hydration routine is essential to replenish lost salts the body sweats out during work.
- A full bag up can weigh between 30 – 50 lbs which a planter must carry on their hips for 8-10 hours a day.
- Pre-season physical fitness conditioning is important to having an injury free season.
- Endurance, strength, and stability training are equally important in a pre-season training regiment.

Equipment For The Job

Boots – Solid hiking boots are an essential of the job, and part of your required PPE. Caulk boots can be an asset but are not essential. Ask your crew boss about the types of terrain you will be working in and if caulk boots are recommended.

Planting Bags & Shovels – Planter's are required to arrive with these items. Bush-pro dominates the industry when it comes to gear, however Workwizer and other independent innovators have options as well.

Gloves – Are a mandatory piece of PPE as well. Nitrile dipped gloves are most commonly used as they are form fitting (necessary for feeling the tree) and somewhat weather and tear resistant.

Silvi-cool Bags (2), Plot Cord, and Whistle, High-Vis, and Climbing Helmet are other essential items on the block, but have less ergonomic stakes attached to them. Compasses are recommended for burnt understory contracts.

Shovel Considerations – Sourced from Pre-Season Fitness for Planters, Dunsmore

Planters may choose to use a staff handle, D-handle, or Workwizer Ergo handle, whichever they prefer. As D-Handle is the most popular option, below are some considerations from Dunsmore's program when re-sizing.

How To Fit Your D-Handle - Sourced from Pre-Season Fitness for Planters, Dunsmore

When you are standing straight, place your shovel curled in the tips of your fingers. The tip of the blade should be touching the ground. I recommend keeping kickers, at least in the start of your planting career, and as you play around with new movement concepts. The kickers may come in handy for load sharing (not leaning on shovel, not smashing shovel into ground, excessive back/shoulder/arm pounding, keep the flow going, changing up movement, etc) – things that will be addressed later in the course.

Things to take into consideration before cutting your shovel:

- Are you wearing your work boots to measure
- If you have longer legs vs. short torso, a longer shovel should be considered
- If you have shorter legs with a long torso, a short shovel may be considered
- Are you predominantly working on slopes – shortened shovel should be considered

Handle position and grip - Sourced from Pre-Season Fitness for Planters, Dunsmore

Some people like to put a slight twist in their shovel handle. This would mimic the ulnar deviation, or natural angle that your wrist sits at. If you choose to do this, keep the twist angle low from 1-3 degrees. In my opinion, a handle twist is moot because a hole in the ground is a hole in the ground. No need to have it perfectly square of on an angle. You want to be able to torque the hold open and if the handle and blade are too far off, the force to open the hole is off, and you may end up twisting your body somehow to make that hole better open. Keep it simple and keep the force/movement of your mechanics to match the opening of the hole on the ground.

How to fit your bags - Sourced from Pre-Season Fitness for Planters, Dunsmore

The bags should sit on your ilium bones where its comfortable. The belt should be on bone all the way around for stability, but also so that your body can move and bend so they are not impending joints. The hips should be taking the majority, if not all of the weight of the bags. If the belt is too high you will be putting to much pressure on your lumbar spine and abdomen. This can put you into excessive lordosis or precent any spinal movement and proper load sharing from happening. This can cause lots of pain by putting weight on structures that aren't weight bearing and then in turn, be very painful and create changes in how you move. If the bags are too low they can impede your ability to hip hinge, which is a big movement component in tree planting. If you can't hip hinge, you will put more pressure and movement on your low back. If you are having trouble keeping bags in place with the standard clip and belt that comes with the bags, consider switching out the belt (or attaching the bags) to another type of belt that will stay in place: horse cinch belt, weightlifting belt, double padding.

Sholder Straps: Shoulder straps should not be taking much of the weight of the bags. If any, 10-15% of the weight. They can help with people that have small or narrow hips. These people I would advise to look into alternative methods for putting the weight mostly on the hips and not the shoulders. For instance: doubling padding for the classic planting bags or a different belt (as discussed above).

If shoulders are taking too much of the weight and/or too tight they can:

- Compress your spine
- Decrease clavicle rotation
- Reduce T-spine movement in the hip hinge while putting the tree in the ground, causing more side bending at the lumbar spine
- Impede movement of the shovel and tree arm
- Impede hip hinge causing you to do more of a 'squat' movement
- Put pressure on traps – causing headaches, fore ward head, rounded shoulders
- Cause chafing

How to fit your shoulder straps:

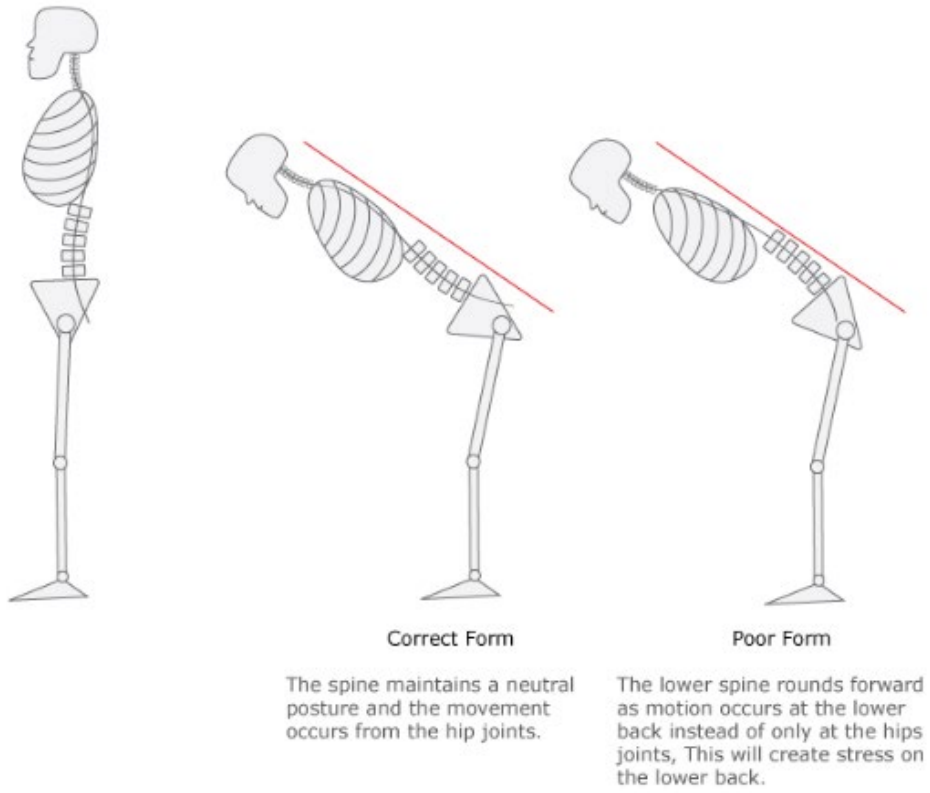
- Able to fit 2 fingers at the apex of the straps when standing
- Able to bend over with full bags without any pulling or increased tension on shoulders or spine
- Able to bend over and maintain neutral spine
- Chest strap not too tight to impede movement of arms when putting tree in ground

Planting Technique / MSI

Good form and technique while planting a tree is essential for surviving a long season, and injury prevention. Wrists, Knees, and Backs are the most common places for injuries to occur. Most tree planting related injuries are not acute (meaning they do not happen from a single isolated incident) and are often classified as an MSI. Musculoskeletal Injury (MSI) is damage to muscles, tendons, ligaments, joints, nerves, or soft tissues caused or aggravated by work activities like heavy lifting, repetitive movements, or awkward postures.

Planting Form For The Back

When bending over to plant a tree, one must maintain in a neutral spine, which requires proper hinging and flexion from the hips. If one does not have the ability of proper flexion from the hip due to tightness or pain, the body will often compensate by engaging the low back, which is aggravating for the muscles and ligaments.



(image credit to Pre-Season Fitness for Planters, Dunsmore**)**

Further, as the back endures a forward bending upwards of 2000 times a day, it needs the opposite motion to counterbalance. This is especially important for the spine as each vertebrae contains spinal fluid that is being pushed back and out with this continuous bending. Total Physio (a planting based online physiotherapy resource) states that planters need to performing upright hip thrusts (or 'jelly pumps') ideally 10 times at the cache when they are bagging up. This practice takes 30 seconds and is very helpful for the spine and low back to function properly.

Wrist Technique for Planting

Wrists are a common point of injury for Tree Planters, especially in the early season with cold temperatures and the body being acclimatized to the job. Tendonitis is the most commonly seen injury with the wrist, followed up by dorsal forearm pain, which is a cousin if tendonitis but is more involved in the upper wrist/forearm and fascia. These injuries are more commonly found in the shovel hand, and can be prevented in a lot of cases with proper shovel technique such as:

- Maintaining a neutral wrist while planting. Tendons become inflamed if they are subject to too much twisting and awkward bending (this is the best defense a planter can have against tendonitis).
- Maintaining a neutral grip on your shovel handle. Over-gripping is another common source of tendonitis.
- Testing the ground before you drive your shovel in as to not continually slam into rocks. Consider using your kicker in very rocky terrain.
- Preventive taping – this can help restrict the wrist from excessive motion.

Wrist Injuries - Sourced from Pre-Season Fitness for Planters, Dunsmore

We use the acronym SHARP to help us determine an acute injury:

S- Swelling

H – Heat

A – Altered Function

R – Redness

P – Pain

I'm going to add *Creaking* into this list too. So, C-SHARP. A tell-tale sign of classic tendo has some creaking of various amounts. Basically, the creaking is the swelling in and around the injured area, and when you move the joint, the swelling moves around causing a creaking sensation.

What to do when you experience pain or tendo?

If you think you have tendonitis in the wrist or thumb, stop planting immediately! These are the next steps guidelines to start your rehab process as soon as the injury occurs.

1- Immobilize the thumb & wrist.
2- Compression.
3- Elevate – raise the limb above the heart a few hours a day.
4- Rest.
5- Stay hydrated & eat well.
6- No Alcohol.
7- Keep moving your body – increase your heart rate to encourage circulation in the body.

If you are unable to work because of a wrist injury, you must report this to your crew boss and go see your camp first-aid attendant. Each situation is different, however it is likely that they will suggest the above, as well as Icing, Taping, and Ant-Inflammatory medicines based off of the Total Physio protocols for tendonitis treatment.

WHMIS

WHIMS is an acronym which stands for **W**orkplace **H**azardous **M**aterials **I**nformation **S**ystem. Every workplace is obligated to provide WHMIS training and information to all employees. Common areas in which WHIMS may appear in our industry is:

- Tree seedlings that have been treated with herbicides.
- Fertilizer packs.
- Fuel such as gas, diesel, and propane.
- First Aid Supplies.
- Cleaning Supplies.

An employer must ensure that general WHMIS education is provided to each worker on:

1. Major hazards of controlled products in use at the workplace.
2. Rights and responsibilities.
3. Content required on labels and SDS, and the significance of this information.

An employer must ensure each employee is instruction in:

1. Specific Procedures for using the product.
2. The safe use, storage, handling, and disposal of a controlled product.
3. Procedures for dealing with the escape or spill of a controlled product.
4. Procedures for dealing with an emergency involving a controlled product.
5. Safe use, storage, handing, and disposal of a controlled product in transit.

Employers are obligated to provide **Safety Data Sheets (SDS)** for each product, which is a technical document providing the following information of a controlled product:

- Hazardous ingredients
- Hazards (fire, explosions, reactivity)
- Health effects of exposure (acute and chronic)
- Hazard evaluation related to storage and handling
- Measures to protect workers
- Emergency procedures

These must be current, no more than three years old, complete and readily available to workers.

All persons handing hazardous materials have their own specific responsibilities in WHMIS.

- Suppliers
    - Supply proper labels and SDS
    - Keep information on labels and SDS current
    - Classify all controlled products
- Employers
    - Educate and train workers
    - Provide safe work procedures
    - Ensure availability of proper up to date labels and SDS
- Workers
    - Understand content and significance of labels and SDS
    - Follow safe work procedures
    - Notify employers about problems with labels and SDS

	**Exploding bomb** (for explosion or reactivity hazards)		**Flame** (for fire hazards)		**Flame over circle** (for oxidizing hazards)
	**Gas cylinder** (for gases under pressure)		**Corrosion** (for corrosive damage to metals, as well as skin, eyes)		**Skull and Crossbones** (can cause death or toxicity with short exposure to small amounts)
	**Health hazard** (may cause or suspected of causing serious health effects)		**Exclamation mark** (may cause less serious health effects or damage the ozone layer*)		**Environment*** (may cause damage to the aquatic environment)
	**Biohazardous Infectious Materials** (for organisms or toxins that can cause diseases in people or animals)				

* The GHS system also defines an Environmental hazards group. This group (and its classes) was not adopted in WHMIS 2015. However, you may see the environmental classes listed on labels and Safety Data Sheets (SDSs). Including information about environmental hazards is allowed by WHMIS 2015.

Working In Extreme Environmental Conditions

Tree Planting operations can take place amongst harsh environmental factors (rain or shine). In certain extreme circumstances such as excessive snow, or unbearable heat, operations may be suspended, however it is not uncommon for employees to work in cold and wet temperatures in early Spring, as well as hot and dry conditions come Summer. Each individual has their own response and threshold to these conditions. It is important to know your limit and work within it, however sometimes cold or heat stress can happen fast, which is why it is important that we understand the signs and look out for our co-workers, and know how to respond if they are showing concerning symptoms.

Heat Stress

What is Heat Stress? Human bodies naturally maintain temperatures between 36° and 38°C. When body temperature rises above this range the body will react to get rid of excess heat. However, if the body continues to gain heat faster than it can get rid of it, body temperature increases and the person may experience heat stress.

There are 2 main factors that can cause Heat Stress. Environmental factors such as:

1. Air Temperature
2. Radiant Heat
3. Airflow
4. Humidity

As well as factors from the individual them selves such as:

1. Personal acclimatization to the conditions
2. Hydration levels
3. Clothing worn to work
4. Pre-Existing Medical conditions
5. Workload / Speed of work itself (possibly extra challenging terrain)

A failure to adequately adapt and adjust to these environmental factors with individual factors can be a recipe for failure when working in hot temperatures.

The body can gain heat in two ways:

1. Generates heat itself through work activities.
2. Absorbs heat from the environment.

The body has two main ways of getting rid of excess heat:

1. Sweating.
2. Moving to a cooler environment.

There are three tiers of heat related conditions, ranging from mild to severe.

Heat Stress (Mild)

Heat Stress is the buildup of body heat, either internally or from the environment, that the body cannot adequately dissipate. If not managed, heat stress leads directly to heat exhaustion and then heat stroke. At this phase, it is easily manageable with the right interventions and should not be ignored. Symptoms of heat stress include:

- High Body temperature
- Excessive Sweating
- Slight muscle cramping

Heat Exhaustion (Moderate)

Heat Exhaustion can happen quickly if Heat Stress is not mitigated properly. It is imperative that a worker experiencing heat exhaustion cease operations immediately to reduce further risk of harm. Symptoms that Heat Stress has escalated to Heat Exhaustion are:

- Excessive Sweating
- Dizziness and/or Headache
- Nausea
- Muscle Cramping and/or Weakness
- Fatigue
- Pale Moist Skin
- Rapid Heart Rate & Shallow Respiration

Treatment for Heat Exhaustion:

1. Stop working & alert a supervisor.
2. Move to a shaded area, or a creek, or inside of an air-conditioned vehicle.
3. Remove excessive layers if necessary.
4. Attempt to cool the body down by splashing cold water, drinking slow sips of cold or room temperature water (ideally with salts or electrolytes), and rest.

Heat Stroke (Severe, Life Threatening)

Most planters have experienced at least heat stress, if not heat exhaustion. Heat Stroke is the final level in the heat stress pyramid and is a severe medical emergency that needs immediate

intervention. Someone with Heat Stroke will display similar symptoms to someone with Heat Exhaustion, with the differences of

- Hot, Dry, Flushed skin
- Shivering
- Absence of Sweating
- Disoriented, agitated, and/or confused behavior
- Slurred speech, poor motor function
- Increased respiratory rate (hyperventilation)
- Very fast and/or irregular pulse rate
- Possible seizures & bouts of unconsciousness

Treatments for Heat Stroke

1. Contact 911, or a helicopter evac, and alert a supervisor.
2. Carry person to a shaded area, or a creek, or inside of an air-conditioned vehicle.
3. If they are vomiting, place them on their side in recovery position.
4. Begin cooling with placing hands and feet in cool water, splashing cool water on body, and if available, ice packs in the arm pits or on extremities.
5. If available, soak light clothing or sheet in water and place on person.
6. If they are profusely shivering, cease cooling operations, and wait for help, being prepared to potentially administer CPR.

The best defence against heat related illnesses is having a good understanding of your own body, and acclimatizing to the conditions slowly, which could look like working lightly for the first few hot days of the season. Bring adequate hydration to the block, including salts and electrolytes for 1/3rd of your drinking water. Dress appropriately for the conditions with light weight long sleeves, hats, and sunscreen. Identify nearby water sources that you could use to cool down if available. And always tell your supervisor if you are feeling even a little bit unwell.

Hypothermia

Hypothermia occurs when your body loses heat faster than it can produce it. Typical body temperature is 36°C, a dip below to 35°C can indicate that mild hypothermia is beginning to occur. A dip to 32°C is considered moderate to severe, and a lowering of body temperature to 28°C can be fatal. A person does not necessarily need to be working in freezing temperatures to experience hypothermia. A combination of cold temperatures, wet conditions, and wind can create the conditions for someone to experience hypothermic shock.

In an attempt to preserve its inner most import organs, the cardiovascular system will begin prioritizing blood flow from the extremities to the organs. It is important that workers consider PPE that is suited for cold and/or wet temperatures when on the block.

- Hands – Consider bringing several pairs of nitrile gloves to change out every bag up. Consider doubling pairs up or wearing a thicker glove on your shovel hand.
- Socks – Wet feet are an inevitability on rain days for most. Consider a wool or wool blend sock for cold, wet days. A mid-day sock change can go a long way as well.
- Head – You lose approximately 7% to 10% of your total body heat through your head. Though this does not seem like much, a warm head and neck can go along way in preserving your body condition. Consider bringing an extra toque and/or buff / neck warmer on colder days.
- Torso – Workers are encouraged to bring a high-quality rain jacket as part of their PPE to work. Others prefer to work in a thick woolen sweater, such as a Stanfield. In either case, a proper base layer is fundamental, such as a thin wool or poly-blend thin long sleeve. If your torso it adequately covered, your body can focus its energy on keeping your extremities comfortable for longer.

Mild Hypothermia

Symptoms Include:

- Shivering (most common indicator)
- Numb Extremities
- Fatigue
- Clumsiness / lack of co-ordination

Treatments:

- Move to warm area – it is likely that the truck is your only available warm area on the block.
- Remove wet clothing
- Insulate the body with dry layers, and/or a blanket
- Avoid smoking
- Slowly sip warm liquids if available.

Moderate Hypothermia

Moderate Hypothermia is poorly named as it is a medical emergency and requires medical intervention. Most workers have experience mild hypothermia, even a severe case of mild hypothermia. In addition to symptoms experienced with mild hypothermia, a person with moderate hypothermia will have the following symptoms:

- Absence or suspension of shivering.
- Significant mental decline i.e: Deep confusion, memory loss, disorientation, and irrational behavior (e.g., removing clothes despite cold).
- Significant physical decline i.e: Inability to perform simple tasks, staggering, fumbling, and severe muscle stiffness.
- Impaired and / or garbled speech
- Dilated Pupils, Pale skin
- Breathing is Slow and Shallow

Treatments:

- This is a medical emergency! Activate the ERP and get medical help immediately.
- Handle the person with extremely gentle motions as they are at risk of a cardiac arrest.
- Move them to a warm environment (i.e. the truck).
- Remove wet clothing, cover with blankets and / or warm layers.
- Apply warmers to neck, chest, armpit, and groin areas if available. Avoid extremities.
- DO NOT vigorously rub the person in an attempt to warm them up.
- Monitor breathing and pulse.

Severe Hypothermia

A person with severe hypothermia will be essentially unconscious, their skin will be cyanosed, their pulse will be extremely slow and weak, as will their breathing. Treatments are the same as moderate hypothermia, with an added emphasis on gentle handling. It is best to move the person into a warm environment and strip of wet clothing, however they will require in-hospital re-warming. Therefore, do not blast the heat. Do not completely insulate them. Do not apply warm packs.

RADAR

RADAR is an acronym designed for workers to consider when assessing a hazard. It can be used to help safely address upset conditions and prevent incidents from occurring.

What is an Upset Condition?

Upset Condition = Unplanned Event

Upset conditions are interruptions in the regular running of the work process or other planned activity. Any distraction or break in the normal work routine is considered an Upset Condition.

Examples of Upset Conditions are:

- Equipment breakdown.
- Unusual job or work conditions.
- Anything that distracts your thinking from the task at hand.

RADAR - The Process

- **R**ecognize the risk
- **A**ssess the situation – stop to think
- **D**evelop a safe solution
- **A**ct safely to fix the problem
- **R**eport and record the upset condition

Dog Policy

Torrent Silviculture is a dog friendly company, however bringing your dog to work is a privilege, not a right. Dog owners will be briefed on camp rules at orientation and must sign our company dog policy. Below are some general rules about bringing a dog to camp.

1. You must alert your crew boss during the hiring process that you intend to bring a dog.
2. Dogs must accompany the employee to work every day and will not be the responsibility of the camp supervisor, or kitchen staff in camp, unless otherwise discussed due to unusual circumstances.
3. Consistent aggressive dog behavior will not be tolerated. We recognize that the beginning of the season dogs needs some adjustment to understand their place in the pack, however a dog that is consistently threatening to other dogs or people will be asked to leave if the owner is unable to manage this behaviour with leashing and muzzling.
4. Planters must arrive to camp with a way to fasten their dogs inside the truck for rides to the block. Dogs must be seated on the ground between the worker's legs and attached to a secure tie down point with a harness. This because in the event of a vehicle accident a loose dog can cause significant harm to itself and other people in the vehicle.
5. You are required to bring proof of vaccination for your dog to camp.

Congratulations, you've reached the end of the manual! We are looking forward to working with you this season.