

Chapter 04 – Working Safely, Hazards

(Reprinted with Permission)

Step By Step **A Tree Planter's Handbook**

A Comprehensive Training Guide and Reference
Manual for Canadian Reforestation Workers

2019 Student Greyscale Workbook



Jonathan Clark

Chapter 04 - “Working Safely, Hazards”

In this chapter, we’re going to focus on Safety within the reforestation industry. Topics that will be covered include assessing risks, identifying hazards, some common safety hazards, and official industry-sponsored training courses.

Incidentally, vehicles are probably the biggest safety hazard in our industry. Due to this, they deserve their own specific chapter, which follows this one.

You may wonder what a workplace hazard is. Basically, it's anything that can injure workers or damage equipment. It could be a physical item, like a bear. It could be an intangible item, like a cold day. It could be the absence of something, such as not having a safety barrier on the side of a road along the edge of a cliff. It could be a process, such as a poor technique used by a planter to squeeze dirt around a tree. It's easy for me to talk about hazards without it being an abstract topic. The thing about tree planting is that if something can go wrong, it often will. Just about every type of problem or accident that I'm going to talk about is something that I've unfortunately seen first-hand.



Figure 4.01

A Hazard Sign in a Wildfire Area.

Most hazards are not identified as readily as this one, and workers need to look around themselves occasionally to make sure there aren't any hazards that they weren't already aware of.

Risk is the likelihood that a hazard will cause harm.

In my mind, the biggest problem in our industry is that many new workers are afraid to speak up when they see something that doesn't make sense. The entire tree planting industry is basically focused on a system of seniority, from the very core. The people who have been planting for the longest time are often the best and fastest planters, which means that they're making the most money. In many cases, they're also the most respected. So when a first-year planter sees something odd happening but another planter with several seasons of experience doesn't say anything, the first-year planter is probably going to be reluctant to speak up and question what's happening. This is a huge problem. Luckily, the situation is changing slowly. The planting industry is able to attract large numbers of applicants, which means that if hiring personnel do a proper job of due diligence during the interview process, newly hired planters should be high-quality candidates who are intelligent and have common sense.

It's important to remember that a planting block and a planting camp are both examples of locations that are considered to be part of the workplace. A worker is not allowed to take "private" risks that are deemed dangerous in the workplace. You cannot voluntarily choose to ignore safe work practices. Put quite simply, that would be grounds to have your employment terminated. Working safely means that you're taking conscious steps to mitigate any known or potential hazards through engineering, administrative, or elimination/substitution controls, or through the proper use of Personal Protective Equipment.

If you see something that looks unsafe, or doesn't make sense, please say something! Just because something has "always been done that way" doesn't mean that it's the best way. If you're worried about looking ignorant or ruffling a few feathers, just be diplomatic about how you say something. You might be able to pick your wording carefully to help convey a message. A good supervisor or foreman usually has a lot of experience and their approach to a problem or situation probably makes sense. But a good supervisor or foreman will always listen to a first year planter, consider what they're saying, and explain why their suggestion may or may not be appropriate for the situation. Even with the experience that I've accumulated over the years, I'm still surprised at least once every season when a first-year planter brings up a suggestion and I think to myself, "Wow, why didn't I think of that a decade ago?"

It is common for a crew to have a quick "tailgate meeting" at the start of each day, after arriving at the block. This meeting is used to discuss hazards, safety, and the operational plan for the day. It only takes a couple minutes, and it's a great opportunity for a crew leader to ensure that everybody on the crew knows what the plan is for that day.



Figure 4.02
Crew Tailgate Safety Meeting.

A brief safety meeting before starting work is an invaluable way to get everyone organized at the start of the day.

Assessing Risk

Assessing Risk involves prioritizing a possible problem based on two separate factors: the likelihood of it occurring, and the severity of the results if it does occur. Events with insignificant consequences are given low priority, even if the chance that they'll happen is high. Events with potentially severe consequences are given high priority, even if the chance that they'll happen is fairly unlikely.

Let's look at two examples: a mosquito bite, and the rollover of a crew truck. A mosquito bite has a high chance of happening, but unless the mosquito happens to be carrying some deadly disease, which is unlikely in BC, then the risk is not high. As for the truck accident, the chance of being in a rollover is lower than that of being bitten by a mosquito, but the consequences could be very severe. Therefore, the vehicle has a high risk priority.

Any incidents in high-risk categories should be examined carefully. In this example of the truck rollover, some proactive solutions might include:

- More focus during safety meetings.

- Consistent use of PPE such as seatbelts.
- Administrative controls, such as requiring drivers to have clean driving abstracts and take bush driving courses.
- Engineering controls, such as installing GPS trackers in trucks that allow the company to monitor speeding remotely via satellite.



Figure 4.03

Vehicles are our Biggest Safety Issue.

There are far too many rollovers and other vehicle accidents within our industry every year. If workers don't feel comfortable with the driving habits of their driver, they should speak up. Would you like to die just because you felt reluctant to speak up and ask the driver to slow down a bit?

Every company should prioritize focus on worksite activities that present the most potential risk to planters. Even a potential event such as tendonitis, which only has a medium impact, should receive significant attention if there's a moderately high chance of it happening to any individual planter. Tendonitis has been acknowledged as a health problem with increasingly frequency in the past four or five years.



Figure 4.04

Tendonitis is a Common Injury.

Injuries don't have to happen instantly. They can build up over a period of time.

Risk awareness and risk identification skills should be taught by supervisory staff to all new workers. If you don't feel comfortable in looking around the workplace and trying to identify potential hazards, ask your foreman or trainer for a demonstration of how he or she would do a risk assessment.

It is also beneficial for workers to participate in emergency drills or practice scenarios. These practice runs train new workers on how to respond if there's an emergency, they help identify any deficiencies in response procedures, and if there's an actual emergency, they help ensure that the situation is managed more smoothly because workers are comfortable with their roles.



Figure 4.05
First Aid Simulation & Emergency
Response Drill.

A crew of new workers is learning how to respond in the event of a serious first aid incident.

Personal Protective Equipment

Some examples of Safety PPE for planters include a safety whistle used to alert others in an emergency, bear mace, a hard hat, hi-visibility vest, a personal first aid kit, compression bandages (pressure bandages), and so on. Most of these items are not usually required when planting in the BC Interior. However, on higher-risk sites such as on the BC coast, many of these items (except for mace) are mandatory for all planters.



Figure 4.06
High Vis and Hardhat.

Planters in some parts of the country are required to wear hard hats and hi-vis. This is not the case in most regions. Hard hat and hi-vis use is most common on the BC coast, and throughout Ontario. Wearing hi-vis is a requirement for management (crew leaders, checkers, tree runners) in some other areas.

In some areas, the use of CSA-approved climbing helmets has been permitted as a substitute to wearing a hard hat. If you're working on a contract where a hard hat is required, check first before you invest in a climbing helmet. Most first-year planters won't have to worry about this, because protective headwear is typically only required on coastal contracts.



Figure 4.07
Wearing a Climbing Helmet.

The use of climbing helmets instead of hard hats has been climbing in recent years, with many licensees agreeing that they should be permitted as long as they are CSA-approved. A climbing helmet is much cooler than a hard hat during the heat of summer. It's also more likely to stay on your head if you take a tumble down a steep hill.

Some examples of other Safety PPE that you might see around a planting camp could include ATV helmets, chain saw pants, oven mitts for the cooks, a hard hat and face shield and ear muffs for someone using a chain saw, or rubber gloves for washing dishes.



Figure 4.08
Helmets for ATV Operators.

If you're operating a quad, or riding as a passenger on any type of ATV that permits seated and belted passengers, you'll be required to wear a proper ATV helmet.



Figure 4.09
Fallers' Head Gear.

Anyone doing chain saw work needs to wear a hard hat with ear protection and a face screen. These helmets are also handy for anyone who is doing slinging or other ground crew work with helicopters.

Natural Worksite Hazards

While it's possible for new hazards to appear in the workplace unexpectedly, most of the time a planter or foreman will simply have to assess whether typical regular hazards are present, in order to determine if special safety

considerations need to be implemented on a site. I'll start by listing some typical hazards that you might find on a block, and how to deal with them.

Slash is the debris that gets left behind after logging. It basically consists of chunks of trees ranging from tiny pieces of branches, to large logs that are difficult to climb over. A block without much slash is said to be fairly clean. A slashy block can present problems. Slash is uneven and slippery, it's difficult to walk over, and broken branches can cut or impale you. Some of your best options if you're working on a block with a lot of slash are:

- Wear caulk boots.
- Choose your foot placements carefully. Don't jump from log to log with reckless abandon. I've known planters who have slipped and gotten concussions or impaled themselves while doing this.
- Test logs or branches for their ability to hold your weight before stepping onto them.
- Use your free hand or shovel for additional balance, in what is referred to as "three point contact."
- Avoid walking on logs with loose bark.



Figure 4.10

Slash is a Hazard.

Some blocks are priced much higher than others. That's a double-edged sword. High prices generally go hand-in-hand with difficult, technically challenging blocks. If you're planting on blocks like this coastal, with a lot of slash, you'll probably want to wear caulks and walk very carefully.

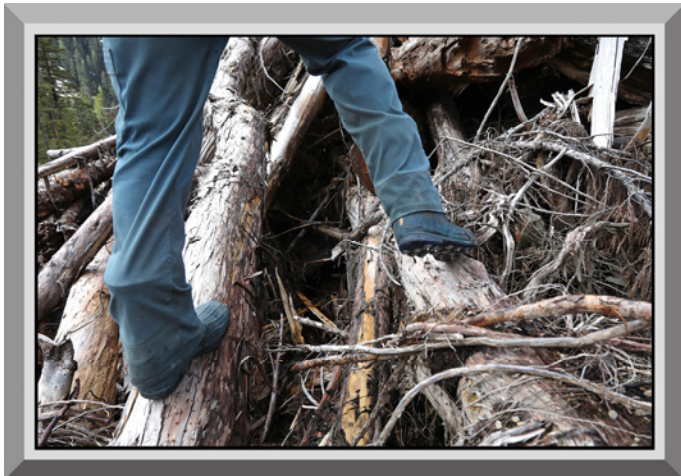


Figure 4.11

The Advantage of Caulks.

Caulked boots are a significant advantage if you need to crawl around on a lot of slash. However, they are unnecessary in many parts of Canada.

Many blocks are not flat. When you're working on a slope that starts to exceed maybe 25% or 30% slope, you should start to consider it to be a bit of a hazard. Even if your footing is still stable on a slope that isn't too steep, you may be putting your knees, ankles, and neck under more strain than usual. Steeper slopes have a greater risk of slips or falls. A planter working up-slope from you can accidentally knock rocks or other debris down onto you. Here are some suggestions when working on steeper slopes:

- Wear caulk boots, and choose your footing carefully.
- Avoid working directly above or below another planter.
- Eat properly and be well-rested so you have more energy.



Figure 4.12
Steep Ground.

Slips and falls can be a major hazard when working on steep ground. This is another coastal block, which is a bit of an extreme example compared to most other parts of Canada. However, this isn't particularly steep for the BC coast. The coast can get a lot worse.

Rocky terrain is hard on the body, even if you don't fall down. Rocks buried in the ground will jar your planting shovel, creating vibration in your planting arm. Rocky terrain can also be a problem for slipping, tripping, or falling. Here are some suggestions if you're working on ground that's especially rocky:

- Learn to recognize softer spots, based on slight variations in the contour of the ground, and on vegetation coverage. This is a very tough skill to learn, and it's usually only acquired after a great deal of time. Many first-year planters are amazed when they see vets hopping around on a rocky block and almost always seeming to find soft spots. This only comes with a lot of practice.
- Tap the ground lightly with your shovel to see if there are rocks near the surface, before trying to stick the shovel in deeply.
- Use your kicker instead of trying to drive the shovel in with your arm.
- In really rocky ground, try wiggling the shovel rapidly with constant pressure on the kicker, instead of actually kicking it.
- Loosen your grip on the shovel.



Figure 4.13
Between a Rock and a Hard Place.

Planting in rocky ground is no fun at all.

If you find that you are tripping sometimes because your boot laces are getting caught on slash, you can tape them to your boots each morning with duct tape, to eliminate the hazard. This practice is also useful for foremen or tree runners who do a lot of work with a quad, so their left boot lace doesn't get caught in the shifter on the quad.



Figure 4.14

Duct Taping your Boot Laces.

If you duct tape your boot laces each morning, you're less likely to trip when you're working in heavy slash.

Brush and other undergrowth can present some of the same navigational problems as slash, and can also scratch and injure a planter. Here are some suggestions for dealing with brush:

- Wear long pants and long-sleeved shirts, plus a pair of gloves.
- In extreme cases, if there's a risk of an eye-poke when you bend over to plant a tree, consider wearing safety glasses.
- Tuck loose boot laces into your boots, or as mentioned, put duct tape over them, so they can't snag on brush or slash.



Figure 4.15

Wear Protective Clothing in Heavy Brush.

If you're working in thorns and heavy brush, you'll definitely want to wear long pants, long sleeves, and gloves. You should also consider wearing safety glasses.

Photo Credit: Andrew Ulmer.



Figure 4.16

Wearing Safety Glasses

Safety glasses aren't always very fun to wear, but they're worth it if they prevent an eye injury when working in a block with a high potential for poke injuries.

Danger Trees are mature trees that have become dangerous because they're unstable and at risk of falling over and crushing someone. Often the trees could be dead or dying, but not always. Some Danger Trees, which are also known (often somewhat incorrectly) as "snags," might not be likely to completely topple, but there could be a large upper section that looks ready to break off. Some reasons why a tree might be classified as a danger tree could be because of a windstorm that starts to push it over, some sort of logging activity or erosion that loosens the roots from the ground, or a ground fire or animal damage or rot that weakens the trunk at the base. Here are some suggestions for dealing with danger trees in your piece:

- Tell your foreman about it.
- Don't work under it. In fact, don't work within one and a half tree lengths of the base, because branches can go flying and injure you when the tree falls, even if the trunk itself can't hit you.
- Consider putting up some flags to designate the dangerous area as a "no work zone" so other workers notice and don't walk under the snag.
- Don't try to push a snag over. A dislodged branch could break off and land on you. The upper trunk could break in half and fall back onto you.

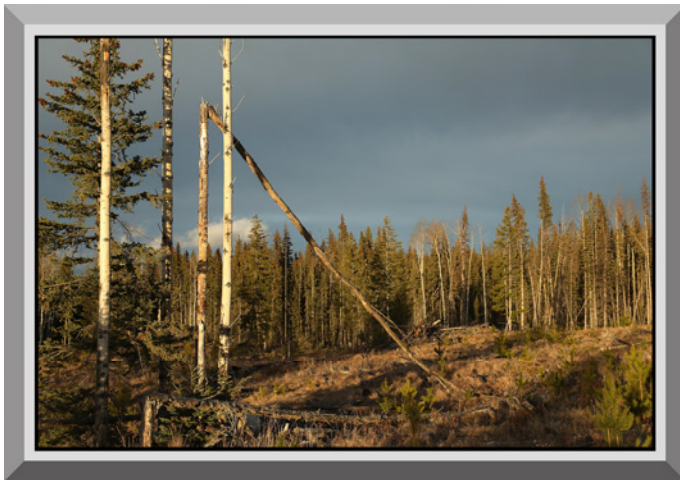


Figure 4.17

Watch Out for Danger Trees.

Planting underneath this danger tree could result in a serious injury if it fell onto a worker.

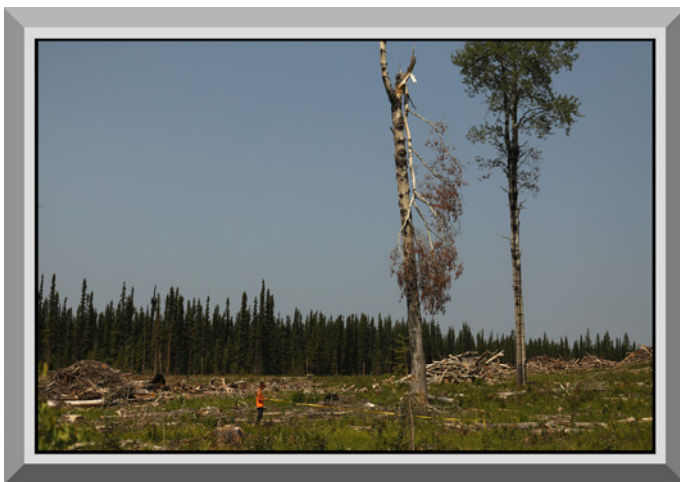


Figure 4.18

Consider the Use of No-Work Zones.

Here we see a crew leader flagging off a no-work zone (NWZ) around this danger tree in the middle of someone's piece.

You may occasionally have to cross a river or stream on foot, for some reason. This can be extremely hazardous due to the risks of slipping and falling. It shouldn't be a large risk because we don't usually have to cross streams on foot without a bridge, but silviculture workers have occasionally died from drowning, such as from when an ATV accidentally goes into a brook. Here are some suggestions:

- Follow directions from your crew boss.
- Wear caulks for any log crossings.
- Cross when there is someone else around to watch, who can help you if you fall in.
- Don't walk through flowing water if it's more than knee deep. Even water that deep is risky.

- Un-strap your bags, so if you trip and go under, your bags don't get caught and pin you underwater.
- Avoid situations where you have to cross water in the first place. Perhaps you can walk around the hazard. Perhaps your crew can work on a different block until the access issue is fixed properly.



Figure 4.19
Unsafe Water Crossing.

It would be extremely unsafe to try to walk across this swollen stream. A few planters have drowned while at work.



Figure 4.20
Be Wary of Road Washouts.

During the spring melt, it is common for roadways to be washed out. Don't try to cross something like this with your truck. In the early 1990's, an entire van load of planters went into a river during spring flooding near Prince George, and all of them were killed.

Weather

There are five main risks due to inadvertent weather conditions: cold, heat, wind, rain, and lightning. Let's cover a few recommendations for each of these conditions.

Early in the season, it's possible to spend entire days working in near-freezing conditions. The effects of cold are compounded with wet conditions. You need to keep both warm and dry to avoid hypothermia:

- Own a set of good rain gear, and make sure you always bring it to the block, even when the forecast is good.
- Dress in many layers rather than just one or two thick items.
- Wool does a great job of retaining its insulating value when it gets wet. A wool sweater like a Henley brand from Stanfield's is not cheap, but it's favored among professional planters in the cold, wet conditions of the coast.
- Bring an extra set of dry clothing in your day-bag. Make sure you keep it dry by wrapping it in a plastic bag.
- Try to keep moving, as muscle movement generates body heat. You'll stay a lot warmer if you keep moving than if you sit shivering at a cache.
- Watch for signs of hypothermia in yourself or others.



Figure 4.21
Be Prepared for Cold Weather.

Working in extremely cold weather is difficult, but it's part of the job. All you can do is have the right clothing so you're fully prepared.



Figure 4.22
Henley Brand Wool Sweater, by Stanfields.

These wool sweaters are ubiquitous among planters (and all other forestry workers and loggers) due to their comfort during cold weather.

You'll often be working in open areas with little or no shade. Even in the shade, you can become overheated if the weather is very hot. Heat exhaustion is a precursor to heat stroke. Symptoms include cool, pale, clammy skin, headaches, nausea, dizziness, and fatigue. You need to cool down and drink lots of fluids. Heat stroke can follow heat exhaustion. Symptoms include lack of sweat, shallow breathing, rapid heart rate, and confusion. Heat stroke is an extremely serious medical condition, where you need to cool the victim immediately and seek medical attention:

- Dress appropriately in lightweight, loose, light coloured clothing.
- Wear some kind of head covering to protect your head from direct sunlight.
- Sun screen is very important, especially at the start of the season.
- Long-sleeved loose shirts are best, but if you have exposed skin because you're wearing a t-shirt, use sunscreen.
- Carry lots of water, drink water before you start your day, and re-hydrate frequently throughout the work day. As I've mentioned, I always carry a couple of small water bottles on every run, so I can drink small amounts every fifteen minutes or so.
- Continue to drink lots of fluids in the evening, to help your hydration levels to fully recover for the next day.
- If you show signs of heat exposure, stop work and find a cool, shaded place to rest while you re-hydrate.

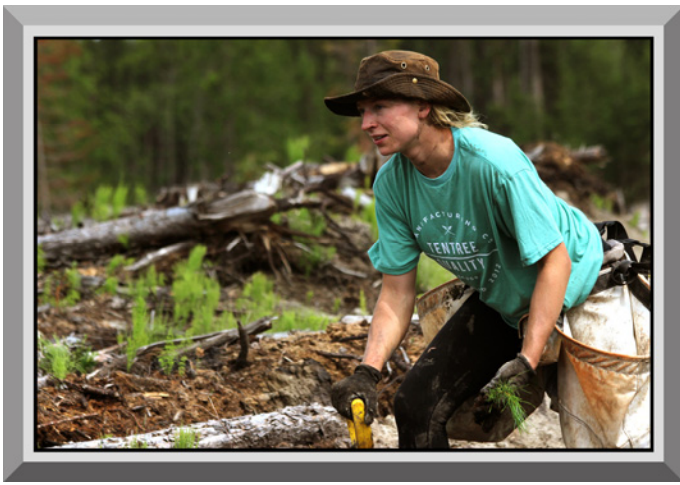


Figure 4.23

A Sun Hat Helps Prevents Heat Stroke.

Keeping direct sunlight off your head and the back of your neck significantly reduces your chance of overheating.



Figure 4.24

Always Wear Sunscreen.

In the short term, sun screen helps to prevent heat exhaustion or heat stroke. In the long term, it helps prevent skin cancer.

Wind will be especially dangerous when there are scattered "residuals" or danger trees throughout your piece. Strong winds can knock branches off trees, injuring workers below. Entire trees can topple and be fatal to a planter. If you're working in an area that suddenly becomes very windy and you see that there are overhead risks, take the initiative to move to a safer area immediately, before a foreman comes and tells you to move. The wind is usually less active in the morning, so you may want to plant the areas along your tree-lines first, if that's possible, before the wind picks up.



Figure 4.25

Windy Conditions Create a Hazard.

If you're working in high winds, it is probably wise to stay away from woodlines and standing mature residual patches.

Lightning storms usually happen on your blocks a couple times per year. If lightning appears to be a risk, there are a couple things you can do:

- Return to the trucks, which are insulated from the ground by the rubber tires, or move to a low-lying area.
- Avoid hilltops, ponds, lakes, and standing in the immediate proximity of large trees.
- There is a myth that lightning always hits the tallest objects in an area, however, lightning will frequently bypass tall objects and hit items closer to the ground. Regardless of this, it's best to keep a low profile.

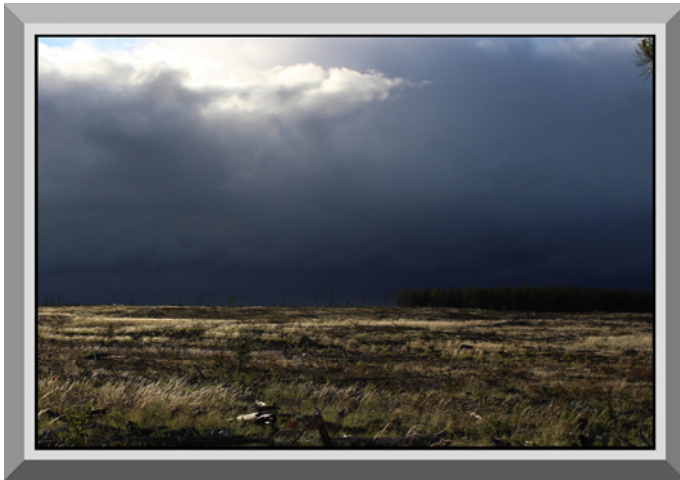


Figure 4.26
Storms and Lightning.

You can see a tiny patch of blue sky still remaining in the upper left of this photo. The weather on this block went from complete blue skies to a lightning storm in less than 20 minutes.

Wet conditions can lead to chilling and hypothermia, which we've already covered. It's best to get out of wet clothes and into dry clothing as soon as possible. If you have a dry change of clothes with you, you should change into them immediately before the drive home. There are also other hazards associated with rain that you should be aware of:

- Drivers should be more cautious on slippery gravel or muddy roads.
- Wear good footwear to keep from slipping. Caulks are especially good at preventing your feet from slipping on wet slash.
- A wide-brimmed hat and/or a good scarf can help keep water away from your neckline. The back of your neck is one of the worst places for heat loss from your body.

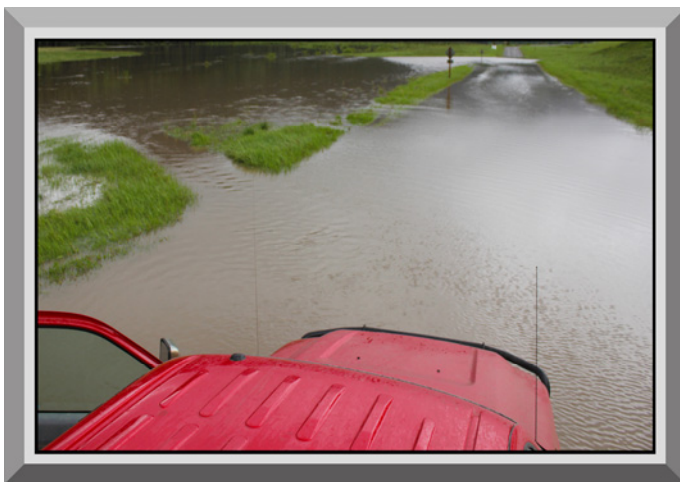


Figure 4.27
Flooded Roads.

Again, a few hours of rain can cause all kinds of access problems on top of the misery of planters being wet and cold.

Chemicals in the Workplace

You may encounter several different types of chemicals in the workplace. Every worker in BC should take a WHMIS course sponsored by your company, which might be done online before the season starts. WHMIS stands for Workplace Hazardous Materials Information System.

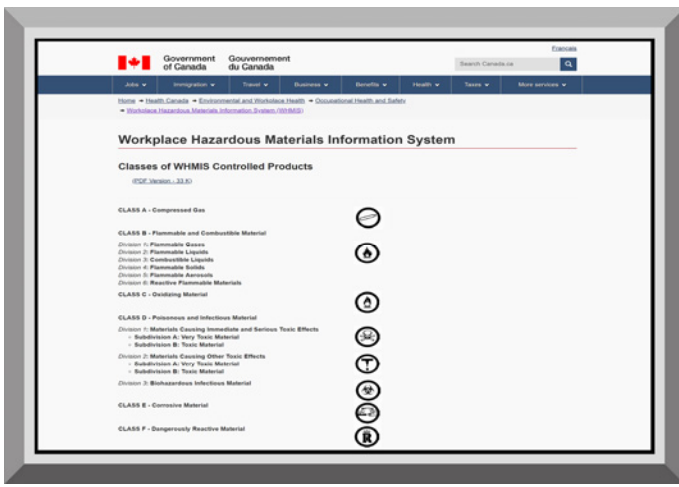


Figure 4.28
WHMIS Information.

WHMIS stands for the Workplace Hazardous Materials Information System.

Source: Government of Canada.

Some of the chemicals that you might encounter on a block include pesticides and fungicides that may be applied to trees. Be aware that when these chemicals are sprayed onto the seedlings at the nursery, they are usually diluted by large amounts of water. Even the concentrated original chemicals can be handled safely by nursery workers with proper precautions, so the risk to planters is probably not significant. However, that doesn't mean that you should ignore it. If the trees have been sprayed with anything, you should wear gloves when planting and when handling them, and wash your hands before eating. Some planters wear an inner layer of latex dish gloves covered by strong but thin nitrile outer gloves, to ensure that chemicals and pesticides don't come into direct contact with the skin. Try to avoid rubbing your face and around your eyes with dirty gloves. Not all trees are sprayed with chemicals. You can ask your supervisor for more information. He or she should be able to get more information, including Material Safety Data Sheets, known as MSDS sheets, that explain the chemicals used.



Figure 4.29
Gloves Prevent Exposure to Chemicals.

An inner nitrile glove prevents chemical exposure, while a tougher outer glove such as the nitrile protects the inner glove and keeps it from ripping.

Some blocks are also sprayed with herbicides that are intended to kill vegetation that competes with the seedlings that have been planted. These herbicides are usually water soluble and will dissipate within 24 to 48 hours, so there's generally almost no risk of planters coming into contact with significant concentrations. Herbiciding doesn't usually happen at the same time of the year as planting.

Wildfires

Wildfires sometimes burn hundreds of thousands of hectares in a single year in BC, which can be a larger amount of land than is reforested in any given year. The fires of 2017 were especially intense, setting records and burning more than a million hectares. For perspective, it usually takes about seven to eight years for the entire BC reforestation industry to plant that much ground. Fires are a huge problem that cost hundreds of millions of dollars

in losses each year. However, it's also important to remember that a wildfire is Nature's way of tidying up and renewing an aging forest. Ask a dozen environmental experts about their views on fires, and you'll get a dozen different opinions. Regardless, everyone can agree that they can be dangerous to people who are unaware or unprepared.

Planters don't often encounter wildfires, although every year or so, I hear of a planting camp that had to be evacuated due to a fire, or a crew that got shut down because of a fire in the area in which they were working. Your company will provide some wildfire safety protocols, just in case. For planters though, the biggest concern is probably not in how to react to a fire, but rather, how to keep from setting one by accident.

Lightning is the biggest cause of fires in BC. Humans usually start about 40% of wildfires, either by accident, through negligence, or occasionally from arson. There have been numerous cases of planters accidentally starting fires on blocks or in camps, and one planting company in the 1990's (Bugbusters) was blamed for a multi-million dollar fire outside of Prince George that eventually bankrupted that company in court. I've even set a block on fire myself once, completely unexpectedly and by accident, when the exhaust pipe from my ATV lit some grass on fire and I didn't notice for about twenty minutes. That was an expensive accident, considering that we had to call in a heli-attack fire-fighting crew to assist us.



Figure 4.30
Unexpected Wildfire.

This wildfire was set inadvertently on a block in Alberta, when the tailpipe on a quad started a small grass fire that subsequently spread throughout part of the block.

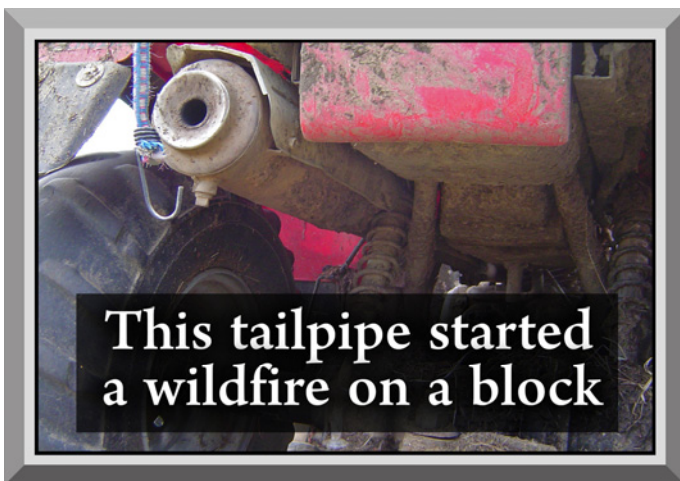


Figure 4.31
Keep Your Tailpipes Clean.

This is the very quad that started the fire in the previous photo. This tailpipe was not cleaned before this photo was taken.

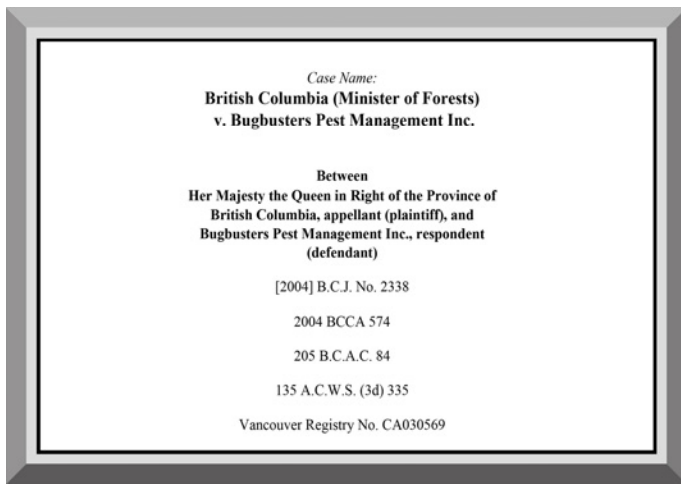


Figure 4.32

Bugbusters Fire, Prince George.

Here's a photo of a court document from the 2004 appeal case for a decision that found Bugbusters responsible for a wildfire that had been set inadvertently in 1992. That fire destroyed approximately 2000 hectares of forested land on a license owned by Northwoods.

Here are some ways to minimize the chance that you'll set a fire:

- Never throw a cigarette butt out of a truck window.
- Always smoke on a bare road, not out on the block.
- Keep your exhaust tailpipes clean on trucks and quads, so they're less likely to overheat.
- Don't light campfires when the fire risk rating is High or Extreme (you may not be allowed to anyway).
- If you do have a campfire at any other time, dig a good fire pit, line it with rocks, don't let it get too large, and have some fire tools ready by the fire, such as a couple of filled water backpack spray-packs and some fire shovels.

The numbers for reporting wildfires change from time to time. Make sure you memorize them at the start of the season. At the moment, the BC number is 1-800-663-5555 (or *5555 from a mobile). In Alberta, the number is 310-FIRE or 310-3473. In Ontario, the number is the same as Alberta: 310-FIRE or 310-3473.



Figure 4.33

Fire Bans.

It is common for campfire bans to be implemented in many parts of western Canada in July and August.

Bears

There are two bear species that an Interior BC planter might encounter – black bears and grizzly bears. You may hear all kinds of other names such as brown bears and cinnamon bears, but these just refer to the colour of the coat of a black bear. Bears have a great sense of smell and are always looking for food. It is also a myth that they can't see or hear as well as humans. That is completely false.



Figure 4.34

Black Bear.

This black (coloured) bear is a black bear (species).

Here are some recommendations to minimize the chance of a problem with a bear:

- Never store food in your tent!
- Avoid wearing perfumes or anything that makes you smell especially good.
- Don't carry smelly food around in your planting bags.
- Dispose of garbage in a box at the cache rather than leaving it on the block.
- Don't get in between a mother and her cubs.
- Be alert for signs of a carcass, like a rotting meat smell or a group of scavenger birds, as this might be a bear's food cache.
- If there's enough brush to hide the presence of a bear, avoid surprising one by making noise while you work.
- If you run into a bear, try backing away slowly and calmly. If the bear continues to approach, stand still and try to look as large as possible, while shouting and appearing aggressive.
- Watch BC's "Bear Aware" video. It was produced by the provincial government, and your company should have a copy for you to watch. To find the "Staying Safe in Bear Country" video, visit: replant.ca/bearaware



Figure 4.35

Bear Aware Training.

If you take time to watch the "Staying Safe In Bear Country" video, you'll learn a lot about bears.

Very few planters carry bear spray, known as mace. Some checkers and foresters, who typically work alone, are more likely to carry mace. I've seen several cases where bear mace discharged accidentally and caused problems for planters. Incidentally, if by some small chance you DO carry bear mace, make sure that you never take it into the cab of a helicopter. Bear mace must always be transported in the cargo hold or in a sling. It's also smart not to keep mace in the cab of a truck, in case it discharges accidentally.



Figure 4.36
Bear Mace Canisters.

Here are a number of cans of bear mace, of various brands.



Figure 4.37
Bear Mace Demonstration.

This photo shows the effective range of bear mace. Obviously, it's not very far. If a bear has gotten close enough that you need to use mace, you've probably done something wrong. Incidentally, this photo is highly artificially colourized to highlight the spray.



Figure 4.38
Wearing a Bear Bell.

Not many planters wear bear bells, but a lot of other forestry workers do.

Other Large Animals

Very few planters will ever see a cougar during their career, unless they perhaps work on the coast or down in the southern Interior. They like to hang out on cliffs, bluffs, and in steep, rocky areas. There are also cougars in northern Alberta, but sightings on blocks are extremely rare. If you see one, or signs of one, let your supervisor know.

Ungulates is the name for the group of animals that includes moose, elk, deer, and caribou. Moose are probably the most dangerous, and I've had planters who were chased by moose. Keep an eye out. You'll probably run into deer fairly often, but they're generally small enough that they run away immediately when they see you. Caribou and elk are bigger than deer, especially elk, but they're not very common on planting blocks.



Figure 4.39
Three Moose.

This early-morning photo shows not one but three moose that were hanging out with each other. Moose are typically fairly solitary animals, except when families are together.



Figure 4.40
Elk.

This elk has a pretty nice rack. It's digging through the snow to get at the grass underneath.



Figure 4.41
Deer.

Despite their speed, deer are very cautious and are easily spooked.

Wolves are secretive and shy away from people. I've only seen a handful of wolves on the blocks. If you run into one, stand your ground and be calm, and don't turn away from it or try to run. Coyotes are much more common than wolves. They're much smaller, maybe 15-20kg pounds each, but you should still be wary of them. They're

unpredictable, and often hunt in packs. If you are cautious and knowledgeable, you shouldn't have any problems. Besides, if you were ever attacked, you have a shovel, and you can fight back.



Figure 4.42
Coyote.

Coyotes, which are much smaller than wolves (about the size of a mid-sized dog) are very mischievous, but they are quite scared of humans when travelling alone.

Sometimes you'll plant in areas where cattle are grazing. The cows are generally going to run away if you get too close, but the bull won't. If you run into a bull, and it looks like he wants to charge you, back away slowly.



Figure 4.43
Cattle on a Block.

Ranchers sometimes have grazing leases that give them the right to let their cattle graze on blocks that we're planting.

There is an appendix at the end of this book which goes into much more detail about many of the species of large animals that are found throughout Canada.

Insects

Wasps, hornets, and bees are prevalent, especially during warm weather in July and beyond. Some of the blocks that you plant on will have nests. Depending on the exact species, the nest could be hanging from a branch or underground. Either way, you might bump into it or unexpectedly open it with a shovel, and get a nasty surprise. Run away. Don't forget your shovel.

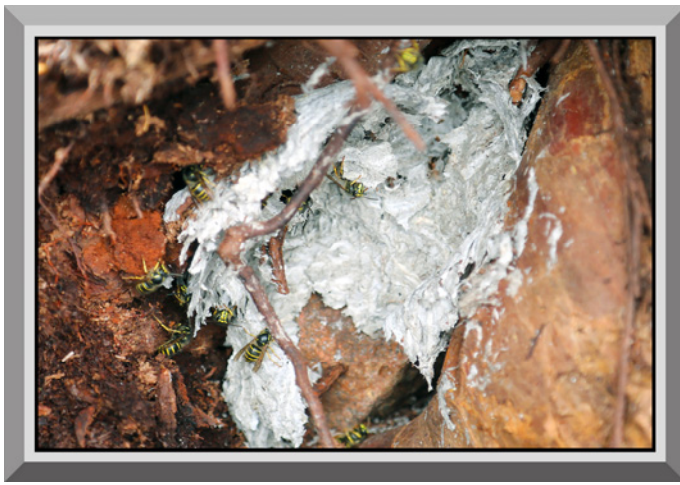


Figure 4.44

Underground Nest of Yellow Jackets.

This underground nest was broken open by a shovel a few minutes earlier.

With some species, a single sting is all you'll receive, and with other species, multiple stings are quite possible.



Figure 4.45

A Yellow Jacket.

Yellow jackets, and other types of hornets and wasps, are often quite docile and won't usually sting you unless you're threatening their home.

If you've been stung before, you'll probably know if you're allergic to the sting. An allergic reaction to a sting is called an anaphylactic reaction, because your body starts to go into what's known as anaphylactic shock. This is not good. In some cases, people have problems breathing, and need to be rushed to medical aid.

Even if you don't have a history of allergies to stings, it's possible to develop an allergy part-way through life, or you might be unaware that you're allergic to one of the several species that hasn't stung you yet. Some people react differently to stings from different species. So even if you think you're not allergic, don't rule allergies out entirely. Most planters, however, are able to carry on without serious reactions to stings.

No matter what, if you get stung, a wise first step is to take a couple of antihistamine tablets, to temper the allergic reaction. One of the biggest problems with anaphylactic shock is that a victim starts to panic if they're having problems breathing, which is a catch-22 situation that causes additional problems. If you're nervous after a sting, and you're waiting to see if you'll have a problem, my advice is to take a few antihistamines and sit in the shade for fifteen minutes or so. This way, you'll be less likely to have an accelerated pulse that speeds up the reaction. If you do this, always notify someone first! You don't want to sit down and have a bad reaction in the shade while nobody notices that something is happening to you. Sitting in a truck is a better idea than sitting by yourself out in the middle of a block, if you have that option. Sitting still and being calm for a short period of time reduces the likelihood of a serious reaction.

Planters with known severe allergies are wise to carry epi-pens. This device administers the user with a shot of adrenaline which temporarily blocks the allergic reaction for a short time, giving the victim time to get to

antihistamines and/or medical aid. If you carry antihistamines in your planting bags for emergencies, make sure they're well wrapped in a couple layers of waterproof zip-lock baggies, so they aren't ruined when you need them.



Figure 4.46
An Epi-Pen.

An epi-pen is a great line of defense for someone who is known to have a severe anaphylactic reaction to stings. However, since planters frequently work hours from the nearest hospital, a single epi-pen is certainly not guaranteed to last long enough for the victim to be transported to proper medical care.

Ticks are common in areas with heavy brush, long grass, and areas used by herd animals, like deer and cattle. They latch onto passing animals or planters, crawl upward to a warm and hair-covered area, then dig in and feed on your blood. Ticks can carry a few harmful diseases, such as Lyme disease. Avoid tick bites by wearing clothing that covers your skin. If you're working in a grassy area that might have ticks, check yourself carefully at the end of each day. We rarely encountered widespread problems with ticks in northern BC, but it is common to work in problem areas further south. If you discover a tick, go see your first aid attendant for assistance. The Canadian government has lots of online information about ticks and Lyme disease.

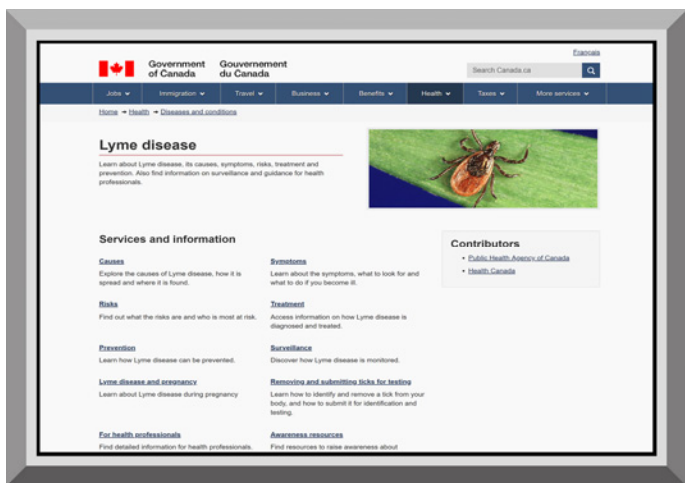


Figure 4.47
Tick and Lyme Disease Information.

Lyme disease is a disease which attacks the nervous system. Many people don't realize that they have it for decades or more.
Source: Government of Canada.

Black flies, gnats, no-see-ums, mosquitoes, and other small flying insects can drive a planter crazy. Not only are they a nuisance, but if they bite, they can cause discomfort and swelling, especially around the face and eyes. Although some people just use lots of mosquito repellants, other planters are leery of applying DEET and other chemicals to their skin. If you're concerned, your best option is to wear long sleeves and pants. Tuck your shirt into your pants, and your pants into your socks. I've never seen a planter wear a bug net/hat for more than a single day, so I can only assume that they're not practical. BC is generally a lot better for black flies and mosquitoes than most other provinces, although they can get to be pretty bad in the northern part of the province, up north of Prince George. The worst bugs are encountered in the very northern parts of Alberta and BC (within a few hundred kilometers of Nunavut and the Yukon), and throughout northern Ontario.



Figure 4.48

Applying Insect Repellent.

Here, a planter sprays the back of his neck with Deep Woods Off, which is a repellent with DEET as an active ingredient.

Photo Credit: Sean Heakes.

There is an appendix at the end of the book that talks about a few species of insects in more detail.

Miscellaneous

You may end up working with helicopters at some point. Every single pilot will give you a detailed safety briefing before you use the machine, and if you switch pilots or helicopters, you'll have to go through another. Pay attention, especially if you've been using helicopters for less than three or four seasons. Every helicopter is slightly different, and every pilot has some variations on their exact preferences around their machine.

Here are some useful safety points for working around helicopters, although you'll definitely need a much more detailed safety briefing when that time comes:

- Wear your seatbelt. It's probably a full harness, not a lap belt, and some of them fasten quite differently than car and truck seatbelts. Helicopters can crash too. I've had tree-planter friends that were in helicopter crashes (no fatalities, thankfully).
- Don't smoke around a helicopter. Jet fuel is fairly flammable.
- Never go uphill when walking away from a helicopter. Even an extra foot of height could be enough to put your head into the spinning rotor blades. Many pilots will prefer for you to crouch beside the machine, with everyone remaining in eyesight of the pilot, before they take off again.
- Watch out for loose plastic. It's amazing that a little piece of plastic bundle wrapper or flagging tape can get sucked up into the rotors and force a shutdown and inspection. If either of those items got sucked into an engine, the situation would be even worse, and very expensive.
- Secure all tarps, pieces of clothing, and anything else that weighs less than about a hundred pounds if it's near a potential landing zone.
- Don't use flagging tape within about a hundred feet of a landing zone. Or if you really have to flag near a landing zone, tie it to branches instead of throwing it loosely onto the ground.

This book now has a full chapter about working around helicopters.



Figure 4.49
Working With Helicopters.

This group of planters remains crouched as a helicopter departs, after it dropped them off at the Staging area at the end of the day.

Hydrogen sulfide is a poisonous gas that is commonly found around planting sites in Alberta, but you can also find it less frequently in parts of BC, especially northeastern BC. It's also referred to by its chemical formula, H₂S. It's highly poisonous, and kills a few people each year in the oil & gas industry. It smells like rotten eggs, but in high concentrations, it kills your sense of smell, so you might think that it's gone away. Methane, a naturally occurring swamp gas, also smells like rotten eggs, but doesn't kill you. I've never heard of H₂S being a problem for planters as a naturally occurring substance from a ground seep. Typically, it's much more of a risk in enclosed spaces, and it's only something to be aware of when you're working on blocks beside oil & gas processing infrastructure. If that's the case, you'll get an extensive safety briefing. If you smell that rotten egg smell and you're not working near oil and gas infrastructure, chances are high that it's just methane bubbling up from swampy ground. Regardless, it's best to be cautious in case there is an actual safety hazard.

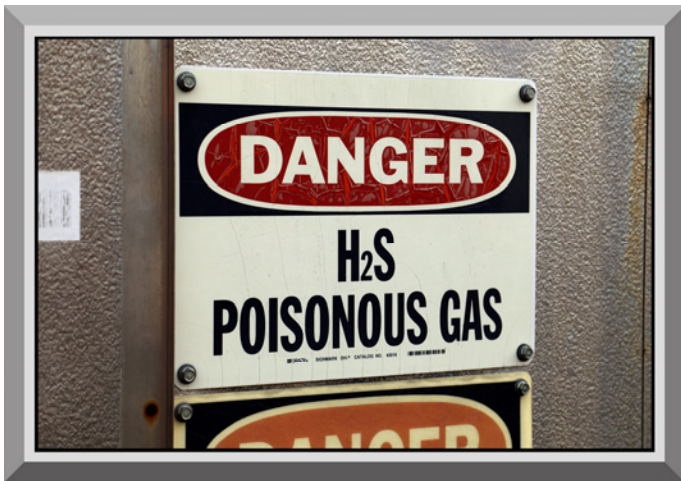


Figure 4.50
H₂S Gas Warning Sign.

Hydrogen sulfide is extremely dangerous. A concentrated leak can kill a person quite quickly. You'll be briefed about the dangers of H₂S if you're working around oil & gas infrastructure that processes it.

If you're using axes or hatchets around camp, make sure the heads are attached properly to the handles. You don't want to be swinging one of those and have the head go flying off and injure someone. Also, make sure the shaft is in good shape and isn't cracking.



Figure 4.51
Inspect Your Axe Handle Before Using It.

An axe can be quite dangerous if used incorrectly, and even more so if the head flies off the shaft.

In every camp, and on every block, there should be designated Mustering Points. A mustering point is the location where everyone gathers if there's an emergency signal. For an emergency signal, you can pick something that creates as much noise as possible, such as repeated safety whistles blowing, or repeated truck horns. When you hear the emergency signal, everyone should immediately stop working and meet at the mustering point, to react to the emergency. It could be a bear on the block, a planter who has collapsed from heat stroke, a fire discovered on a nearby block, or any of dozens of other problems. During an emergency, it's good to have a lot of helping hands, in case someone needs to be evacuated from the block on a stretcher.

Roll Call is another good practice. In an emergency situation, when everyone has met at the mustering point, there needs to be a way to quickly check to ensure that nobody is still out on the block. All crews must also do a roll call at the end of the day before driving home for dinner, to make sure that nobody gets left behind. Planters have occasionally been forced to spend a night on the block when roll call was forgotten. That can be extremely dangerous (and emotionally debilitating).

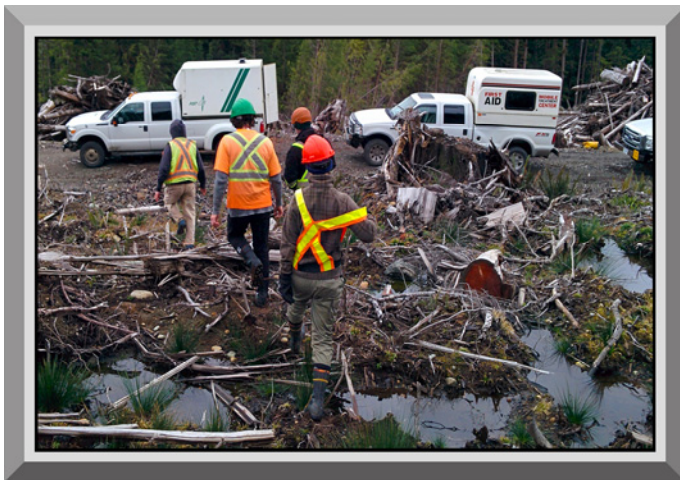


Figure 4.52
Getting Pulled Off the Block.

If there's an emergency and everyone needs to meet at the trucks, someone should do a head count or roll call, to ensure that the entire crew is there and nobody is still working on the block.

Four Pillars of Safety

Some companies refer to the Four Pillars of Safety: Education, engagement, engineering, and enforcement. Let's look at why each of these is important.

Education – In order to understand how to avoid a hazard, a worker must understand that the hazard exists, and understand why it is a hazard. If you were a herbicide sprayer, you might not think protective clothing is necessary until you are educated about the potential health effects of chemicals in the spray that you are handling.

Engagement – Discussing hazards and safety is a proactive means of preventing problems from happening in the first place. As in many other areas, communication is very important. Perhaps a log truck driver is at a safety meeting and mentions that a sharp corner at km49 is a problem, because it's not possible to see oncoming traffic. After the group discusses the issue, the supervisor may bring in mulching equipment to clear away some brush.

Engineering – Often, the risk associated with known hazards can be mitigated by finding engineered solutions. For example, if a muffler is thought to pose a risk of starting a fire, a spark arrester could be added, and a protective sheath installed so flammable materials cannot come into contact with the hot surface.

Enforcement – Sometimes, when all else fails (the proverbial carrot), the only remaining method for ensuring compliance is through enforcement (the stick). If log truck drivers are found to be driving without seat belts, they probably won't be beaten with a stick, but their company may fine them, or suspend them from duty temporarily.

Industry-Certified Training Courses

There are a number of industry-certified training courses available from various training institutions. Most of these are not cheap, although in some cases, your company will pay for them. These courses are more frequently taken by experienced workers or management personnel than by first-year planters. Here's a short list of some of the common courses:

- **Transportation of Dangerous Goods (TDG):** This course is targeted at drivers, and educates them about policies that need to be followed when someone is transporting dangerous goods in large quantities (ie. tanks of gasoline or diesel or jet fuel, large numbers of propane canisters).
- **S-100 Fire Suppression:** This is the basic entry-level course for people who might become involved in fighting wildfires. It teaches participants about things like fire behavior, and basic equipment operation and management. There are additional higher level courses in this series (such as the S-185).
- **BCTS EMS:** This is a course designed to familiarize participants with the EMS system that is used throughout the province by the BC Timber Sales organization.
- **Level 1 OFA:** This is the basic entry-level occupational first aid course. This is usually a one-day course or, if you also take the recommended Transportation Endorsement component, a full weekend.
- **Level 3 OFA:** This is an advanced first aid program that involves two weeks of instruction. This course is designed for first aid attendants who must work in very difficult conditions, such as treating victims of life-threatening accidents at remote forestry, mining, and oil & gas worksites. Because of WorkSafe BC regulations pertaining to first aid, obtaining your OFA3 certification is pretty much a sure way of getting your foot in the door at just about any company you want to work for. Many planting companies are required to have several OFA3's in each camp.
- Many more courses have self-explanatory names, such as **H2S Alive, Safe Bush Driving, ATV Safety, and Chainsaw Safety.**



Figure 4.53
Online EMS Training in BC.

*BC Timber Sales offers an online training course for people who want to learn more about Environmental Management Systems.
Source: BC Timber Sales.*

For more photo and video resources associated with this chapter of the book, as well as links to curriculum pages for a number of the industry-certified training courses mentioned here, visit:
www.replant.ca/training/safety

This document has been shared with permission from the author, Jonathan Clark.

It is recommended that all first year tree planters purchase a copy of the full print edition of “Step By Step: A Tree Planter’s Handbook.” The print edition contains twenty-nine chapters and five appendices, with hundreds of photos, in a 492 page book. Many companies now include this book as a mandatory component of their pre-season training programs.

The chapters on Health & Safety may be shared freely in order to maximize the ability of companies to provide initial pre-season health & safety training to new employees in a timely manner, using a digital format. By seeing the contents of these two chapters, new planters will also understand how much additional information is available in the full print edition of the book.

For more information, visit: www.replant.ca/stepbystep

Tree planting is known for being one of the hardest jobs in Canada. Often referred to as a Canadian “rite of passage,” this tough job epitomizes the definition of a love/hate relationship with a career. Whether you’re considering tree planting as a stepping stone toward a career in forestry, looking for a temporary summer job, or merely curious about the work that your friends do, this book offers an insightful glimpse into what is involved in becoming a successful tree planter in Canada.

