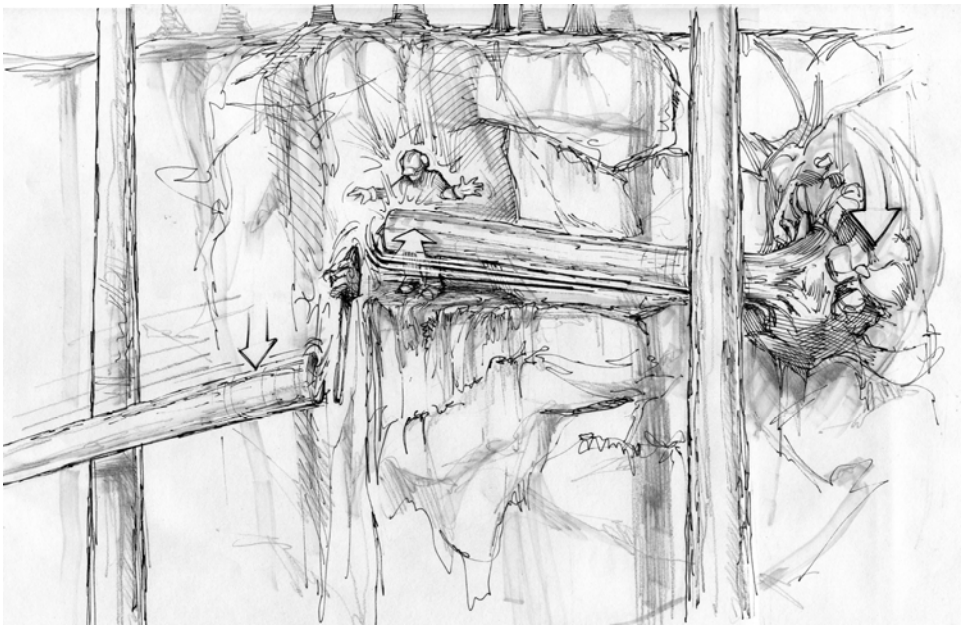
Faller dies when struck by bucked tree

A faller was standing on the narrow ledge of a cliff to buck a windfall tree. The windfall's rootwad was lying on the perimeter of the ledge and was only loosely attached to the ground. Most of the windfall's 58-foot trunk was suspended between two standing trees below the ledge. As the faller completed the bucking cuts, the rootwad rolled downhill off the ledge, causing the lower part of the trunk to pivot on one of the standing trees. Then as the suspended trunk swung uphill, its bucked end pinned the faller against the cliff. He sustained fatal injuries.



Purpose of this report
The purpose of this online incident investigation report is to identify the causes and contributing factors of this incident to help prevent similar incidents and to support preventive actions by industry and WorkSafeBC. This online version is not the official WorkSafeBC report. It has been edited to remove personal identifying information and to focus on the main causes and underlying factors contributing to this incident.

Notice of Incident information
Number: 2008161750006
Outcome: Fatal
Core activity: Manual falling and bucking
Region: Vancouver Island
Date of incident: January 2008

Table of Contents

1 Factual Information

1.1 Employers

Several employers were involved at the logging site where a fatal bucking incident occurred.

1.1.1 The owner

International Forest Products Ltd. (Interfor) held the cutting permit for the worksite. It was the owner of the workplace under the *Workers Compensation Act*. Interfor contracted with Heliqwest Aviation Inc. for the helicopter falling and helicopter yarding of specified cut blocks. This contract included the cut block where the incident occurred. As part of supervising the contract, Interfor performed frequent on-site inspections and oversaw safety matters.

1.1.2 The prime contractor

Heliqwest Aviation Inc. (Heliqwest) works internationally and engages in aerial yarding with its own aircraft and with contracted aircraft. Heliqwest and Interfor had a written contract in which Heliqwest agreed to perform the prime contractor functions required by the *Workers Compensation Act*. For the Interfor logging contracts, the Prime Contractor Representative engaged a falling contractor, South Coast Standing Stem Ltd. (SCSS). Heliqwest had a written contract with SCSS that included requirements for workplace safety.

1.1.3 The falling contractors

SCSS provides specialized falling services for the heli-logging industry. SCSS had a verbal agreement with a related firm, North Coast Standing Stem Ltd. (NCSS), to enter into contracts with independent falling subcontractors.

NCSS and SCSS have a common firm principal. However, NCSS business operations were looked after by the Bullbucker, who is also a contractor with his own limited company. NCSS paid the falling contractors, all of whom were the sole employees of their own limited companies.

1.1.4 Numbered falling company

Faller 1 was the principal of this incorporated falling company. He had worked as a contract faller for over 15 years.

1.1.5 Firm not involved in heli-falling and yarding operation

Interfor also contracted with another company that conducted high-lead logging operations at sites separate from Heliqwest's contract areas. This company was not involved with the heli-logging or with the falling where the incident occurred. However, this company's Level 3 First Aid Attendant and other employees provided emergency assistance after the bucking incident.

1.2 The logging site

1.2.1 Access to the heli-logging site

The heli-logging site where the incident occurred can be reached only by aircraft or boat. Some forest roads serve some of the area's logging sites, but helicopters were typically used to reach the heli-logging areas. The falling crew commuted to their worksites on charter helicopters. No full-time on-site support helicopter was involved in this contract.

1.2.2 Logging methods using a helicopter

For the aerial yarding at the logging site, Heliqwest used a medium-lift helicopter equipped with only one seat for the pilot. This helicopter, rated to lift 6,000 pounds, is equipped with scales and a suspended mechanized log grapple. The helicopter pilot can use the grapple to grasp logs, usually without help from ground-based workers to yard the logs. The suspended grapple can move dangerously positioned logs to safer locations for bucking. The helicopter grapple can also snap off a suspended tree's top, or lift a cut-up tree that has fallen into standing timber.

To ensure that logs were within the weight-carrying capacity of the medium-lift logging helicopter, the fallers had handheld computerized scaling devices, which they used to determine which of the heavier logs needed to be "ripped" or split lengthwise with power saws. Typically, the fallers and the helicopter did not work on the same block at the same time. After the fallers had processed the timber, they moved to another falling location, while the helicopter yarded the processed logs.

1.2.3 Timber and terrain at the incident site

The cut block contained a mix of old-growth and second-growth timber: red and yellow cedar, fir, hemlock, and balsam. Most of the terrain was of moderate slope compared to most typical heli-logging areas. However, at the edge of the cut block was a rocky ridge with an 80–90 percent slope (see Figure 1). Part of the ridge had a nearly vertical cliff face. At the base of this cliff was a small ledge that ranged from 1 to 6 feet in width. The incident occurred on the flatter, widest end of the cliff ledge, a few metres uphill of the block boundary. Below the cliff were some standing trees. Before the incident, a blown-down cedar tree, suspended over the cliff ledge, protruded downhill into the falling area.

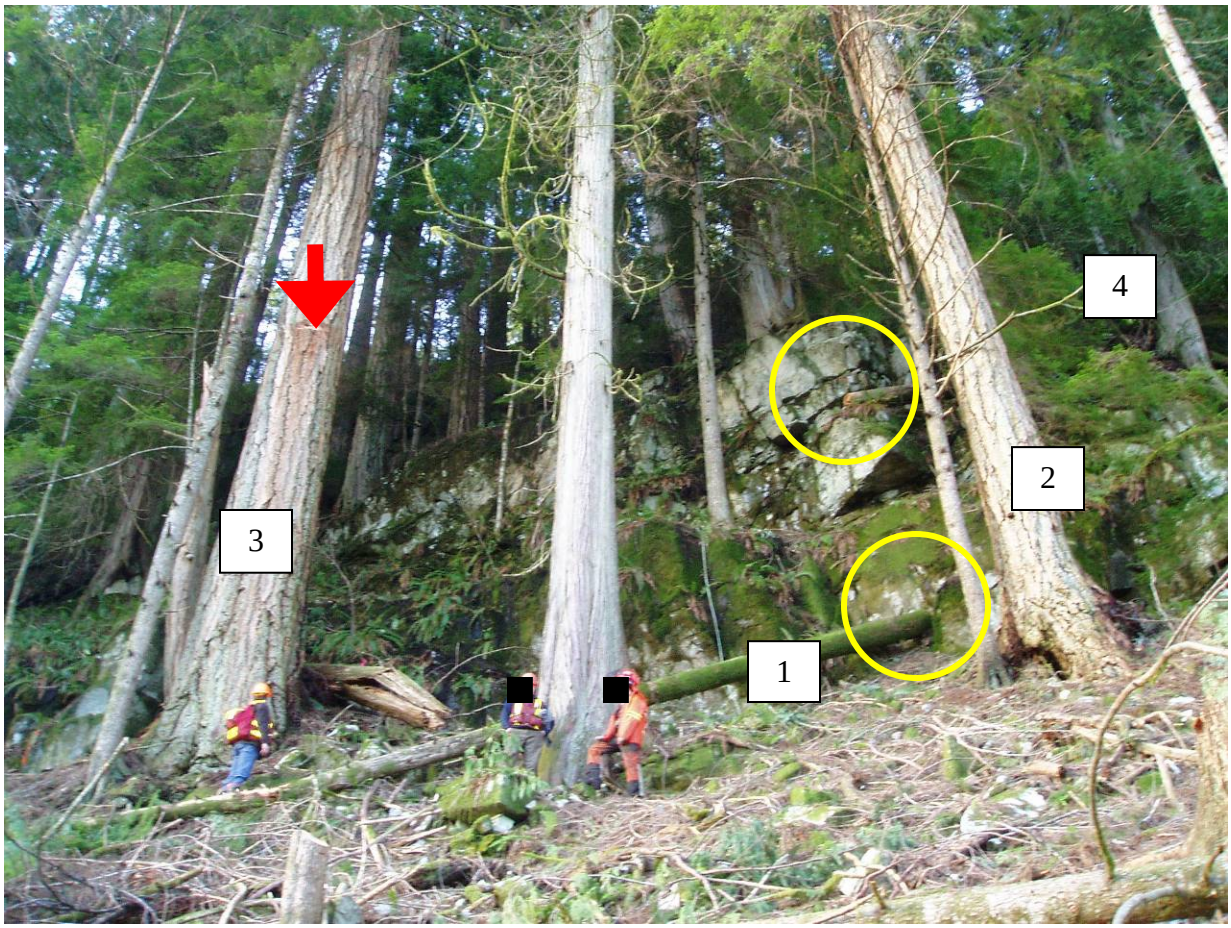


Figure 1: *Incident area, showing the rocky ridge with its cliff ledge. The bucked ends of the blown-down tree (1) are circled. The red cedar tree (2) is at the bottom of the cliff. The red arrow points to the rub mark on the fir tree (3) made by the top of the blown-down tree. The original location of the blown-down tree's rootwad (4) was near the edge of the cliff ledge. (Photo courtesy of International Forest Products Ltd.)*

Before the incident, the blown-down tree's rootwad was at the edge of the cliff ledge, only loosely attached to the rocky ground by a few roots. It had plenty of rocks embedded in its dead root system.

The lower third — that is, the end with the rootwad attached — of the 58-foot blown-down tree was positioned over the narrow end of the cliff ledge. This portion was wedged against the uphill side of the red cedar. The suspended upper two-thirds of the blown-down tree extended out from the cliff ledge into the logging block below. The broken top of the blown-down tree was wedged against the downhill side of a fir tree (see Figure 2).

Figure 2: *Narrow end of the cliff ledge. The blown-down tree, as depicted by the vertical lines, was suspended between the two large standing trees. The arrow and the circled area show where the suspended blown-down tree contacted the standing trees. Rub marks on the standing trees were evident at these contact areas. The blown-down tree's pivot point was inside the circled area.*

1.3 Sequence of events

1.3.1 Before the incident

On the day of the incident, Faller 1 travelled in the Bullbucker's truck with other crew members to the chartered helicopter base. While awaiting the helicopter's departure, the Bullbucker and falling crew had an informal safety meeting. Faller 1 told the Bullbucker that he had to take down an overhanging blown-down tree above the block boundary before he could safely fall the few remaining trees near the boundary, which were downhill from the blown-down tree. Faller 1 and Faller 2 had noted the overhanging blown-down tree the day before, and neither faller believed that dealing with it would present any unusual difficulty.

The helicopter Pilot flew the Bullbucker and falling crew to their respective work areas. Faller 1 and Faller 2 were delivered to the same block. They planned to rip logs and then fall a few trees for part of the day. The Bullbucker was flown to a different location (close to Faller 1 and 2), where he planned to work alone ripping logs.

1.3.2 The incident

Later that morning, Faller 1 told Faller 2 not to buck a log with a shattered butt because its position and potential for shifting made it unsafe to do so. Faller 1 then stated his intention to take down the blown-down tree. Faller 2 saw Faller 1 climb the ridge up to the ledge to one side of the blown-down tree's rootwad. Faller 2 stopped working to fuel his saw. From his position about 200 feet away from the ridge, Faller 2 heard, but did not see, Faller 1 start his saw and make the first and second bucking cuts into the

blown-down tree. Faller 2 then heard a “popping sound” and looked toward the ridge. He saw and heard the blown-down tree’s upper trunk drop to the ground below the ridge.

No one witnessed the incident, but evidence at the scene indicates that Faller 1 bucked the blown-down tree about 20 feet from the rootwad. Faller 1’s injuries and the undamaged condition of his saw indicate that he operated the saw with his right hand and with the saw held to his right. He made the bucking cut while standing on the wider end of the ledge (see Figure 3). The tree had a 16-inch diameter where Faller 1 placed his bucking cuts, and it was suspended over the ledge at a level just below Faller 1’s chest.

Figure 3*: Depiction of Faller 1’s position at the wide end of the cliff ledge.*

As Faller 2 finished fuelling his saw, he continued to hear Faller 1’s saw idling, so Faller 2 lifted his earmuffs to hear more clearly. The noise from the saw seemed to come from below the ledge where Faller 1 stood, so Faller 2 yelled to Faller 1. When he got no response, Faller 2 walked to the bottom of the cliff, where he located Faller 1’s saw. He saw Faller 1 pinned against the cliff face by the bucked end of the blown-down tree.

1.3.3 Emergency response

Faller 2 radioed for help and then climbed onto the cliff ledge, where he found Faller 1 unresponsive. After the Bullbucker arrived on the scene, he held Faller 1 as Faller 2 cut the blown-down tree near where it had pivoted on the standing cedar. As a result, the rootwad fell farther downhill (see Figure 4). Once the portion of the tree that had pinned Faller 1 was bucked on both ends, it fell onto the cliff ledge and rolled forward. First the Bullbucker and then the First Aid Attendant, who had arrived on the charter helicopter, attempted CPR but were unsuccessful. The charter helicopter took the First Aid Attendant and Faller 1 to the hospital, where it was confirmed that Faller 1 had died at the logging site.

Figure 4: *The rootwad came to rest below the ledge after Faller 2 made his bucking cut to release Faller 1. Note the rocks embedded in the rootwad.*

1.4 Safety requirements for fallers

The Occupational Health and Safety Regulation (OHS Regulation) and the BC Faller Training Standard contain the safety requirements for fallers in British Columbia. These requirements were in effect at the time of the incident. Before being certified, all fallers receive their own print copy of the BC Faller Training Standard. To achieve certification, fallers must demonstrate their ability to comply with the safe work requirements of both the OHS Regulation and the BC Faller Training Standard.

1.4.1 Assessing and controlling bucking and falling hazards

The OHS Regulation states that falling or bucking must not proceed if a tree or log is in a condition that, if felled or bucked in that condition, would pose a foreseeable risk to a worker. A related section of the OHS Regulation states that fallers and buckers must not work in a location where they or other workers may be endangered by that work.

Before falling or bucking a tree, fallers must plan their work, conduct a detailed falling or bucking assessment of the site and individual tree hazards, and determine the proper sequence of saw cuts. The BC Faller Training Standard describes the performance requirements for many aspects of bucking, and it emphasizes procedures for dealing safely with blown-down trees. Blown-down trees present fallers with significant bucking hazards, and fallers must consider several factors — some of which are outlined below in sections 1.4.2 to 1.4.4 — to safely buck blown-down timber.

1.4.2 Identifying potential pivot points

Bucking logs — especially on uneven or steep ground — may cause them to pivot, slide, or react unexpectedly. The BC Faller Training Standard provides instructions for dealing with bucking hazards. A critical means of controlling pivoting hazards is to buck the tree or log at or as near as possible to the pivot point.

1.4.3 Bucking logs under tension

Logs or felled trees wedged among standing timber, suspended on objects, or positioned with uneven weight distribution are subjected to “bind,” that is, a buildup of compression and tension. Fallers must use the correct cuts in the appropriate sequence to control how these trees and logs react during and after

bucking. However, even the most skilled faller may not always be able to predict exactly how a heavily tensioned and compressed tree will react.

If a faller anticipates that a tree or log might spring toward him during bucking, he might be able to avoid being struck by operating the saw from the "off-side." This means using the saw with the arm not typically used, while standing out of the area into which the bucked log end will move.

1.4.4 Requirements for escape route

Both the OHS Regulation and the BC Faller Training Standard require that a faller prepare a safe escape route before falling or bucking. Faller 1 did not have any viable escape routes from the cliff ledge.

1.5 Health and safety systems

Fallers must also receive information about safe falling and bucking through their employers' health and safety systems and written safe work procedures. This section of the report outlines the safety systems and procedures at this workplace.

1.5.1 Interfor's health and safety system for contracted logging

Interfor evaluated its contractors' health and safety programs before entering into the contracts. Then as part of its systematic approach for monitoring contractor safety performance, Interfor assigned personnel to supervise contractors. They visited the logging sites regularly to monitor compliance with safety requirements. Between the start of falling operations and the fatal bucking incident, Interfor inspected the site three times, amounting to one on-site visit for every eight days of falling. From its prime contractor, Interfor also required copies of faller audits conducted by the falling contractor.

Interfor provided its contractors with written safety expectations, and it periodically held contractor meetings to address safety. A few weeks before the incident, Interfor required all contractors' supervisors to attend a half-day safety seminar.

1.5.2 Heliqwest's health and safety system

Heliqwest had a process in place to ensure that SCSS complied with core safety requirements such as conducting regular inspections and holding regular safety meetings. The Prime Contractor Representative had limited experience in the prime contractor role. His expertise was in aviation and aerial harvesting rather than falling or logging. The Prime Contractor Representative owned two medium-lift helicopters, which were contracted to Heliqwest. Heliqwest provided a comprehensive written health and safety program on the aviation aspects of the contracted work. Heliqwest and SCSS conducted safety planning before the start of operations and submitted the corresponding planning documents to Interfor.

1.5.3 South Coast Standing Stem's health and safety system

SCSS provided on-site supervision and had an extensive written health and safety program focused on falling and bucking in heli-logging operations. This program was professionally developed and effectively implemented at this worksite.

The written material provided detailed information about bucking trees under bind and about managing dangerous trees. It included instructions to fallers to leave undisturbed any trees too hazardous to fall or buck and to seek alternatives for dealing with such trees. At a faller's or bucker's request, Heliqwest

provided a helicopter to reposition hazardous trees. The written program also contained detailed instructions for the supervisors of fallers.

NCSS did not have its own written health and safety program but followed SCSS's program.

1.6 Supervision

The Bullbucker, a certified faller, had extensive falling experience. He had supervised fallers for several years for SCSS, NCSS, and other employers. The Bullbucker had been trained as a supervisor by others with extensive logging experience. Although the Bullbucker was qualified to supervise fallers, he had not attended any formal supervisory courses and was not a qualified supervisor/trainer (QST) authorized to test fallers for certification. Formal supervisory training and status as a QST were not required at the time of the incident.

The Bullbucker evaluated Faller 1's workmanship at SCSS's worksites by various means. Every week, the Bullbucker conducted informal, undocumented evaluations by walking through the fallers' work areas to observe them as they worked. The Bullbucker had walked the cut block where the incident occurred but had not observed the specific trees involved in the incident.

Once a month, the Bullbucker conducted formal workmanship evaluations of every faller, and documented the evaluations on falling audit forms. The falling audit's criteria followed the BC Faller Training Standard. The Bullbucker gave Faller 1 several favourable falling audit evaluations.

All fallers had radios and could consult the Pilot, other fallers, or the Bullbucker about falling or bucking difficulties.

1.7 Faller 1

1.7.1 Falling experience

Faller 1 was certified according to the BC Faller Training Standard. A career faller who had taught Faller 1 about falling and bucking said that he had often talked to Faller 1 about the particular hazards of bucking blown-down trees. Faller 1 had over 15 years' experience in falling timber. He had worked successfully in challenging environments such as steep mountainous terrain and large forest fires. The Bullbucker regarded Faller 1 as the most skilled and experienced faller on his NCSS crew. As a result, he usually assigned Faller 1 to quarters with the largest timber.

1.7.2 Orientation and training

When Faller 1 was hired, SCSS provided him with detailed written material about the firm's specialized equipment, production methods, and safety procedures. Each faller hired was required to sign a document acknowledging receipt of this information and to agree to follow the safety procedures. SCSS's firm principal had the Bullbucker work with newly hired fallers for several days in order to evaluate their skill and work habits. The Bullbucker evaluated Faller 1 in this way and found his workmanship acceptable.

1.7.3 Safety attitude and workmanship

The Bullbucker, Faller 2, and Faller 3 all commented positively about Faller 1's attitude toward safety. A few minutes before the incident, Faller 1 recognized that neither he nor Faller 2 should buck the

shattered end from a log because the log had the potential to move and hurt someone. Faller 1 marked this log to identify the hazard and to indicate the need for the Pilot to relocate it to a safe location.

After the incident, stump audits conducted on ten trees felled by Faller 1 indicated acceptable workmanship on eight of them. The investigation into this incident did not find evidence that Faller 1 was careless about his work or lax about safety.

2 Analysis

Readers should note that this fatal bucking incident occurred before substantial changes regarding forest industry safety were made to the Occupational Health and Safety Regulation. In brief, these changes refer to occupational first aid and worksites reached mainly by aircraft. New or revised requirements address planning, prime contractor qualifications, and the supervision of fallers.

This analysis will focus on the following questions:

- Was manual bucking on the cliff ledge an acceptable way to deal with the suspended tree?
- Why did Faller 1 decide to buck the suspended tree from the cliff ledge?
- Were Faller 1's instructions, training, and supervision adequate?
- Was planning for safety adequate?

2.1 Manual bucking near the cliff face

The ledge was not a safe location for bucking or falling. The ledge's perimeter was a nearly vertical drop-off, ranging from 6 to 12 feet above the ground. The uphill end of the ledge was the cliff's sheer rock face. According to both the BC Faller Training Standard and the requirements of the OHS Regulation, Faller 1 should not have worked on the cliff ledge because it lacked viable escape routes. Faller 1 had the right and responsibility to refuse to work in this hazardous location.

In this workplace, the medium-lift logging helicopter was available to deal safely with the tree. We do not know why Faller 1 did not ask the Pilot to use the helicopter to relocate the tree or use its grapple to snap off the suspended part of the tree.

Yet another way of dealing with a dangerous tree is to establish a no-work zone around it. Faller 1 could have consulted with the Bullbucker about not working at the edge of the block boundary because of the cliff and the suspended cedar.

2.2 Possible reasons for Faller 1's decisions

Fallers must use their best judgment to make crucial decisions, often by themselves. Performing a tree and site assessment is critical. This part of the analysis will consider the possible reasons for Faller 1's decisions.

2.2.1 Rootwad condition

The rootwad lay on the edge of the sloping cliff ledge with only a few of its small roots still in the ground. Many rocks embedded in the rootwad made it extremely heavy (see Figure 4). Its weight contributed to its sudden fall downhill and the tree's sudden pivoting. The weight of the falling rootwad forced the rest of the tree to pivot uphill toward the cliff face.

It is possible that Faller 1 did not assess the rootwad adequately. Or if he did assess it, he may have believed that it would stay put even though it was very close to a sharp drop-off. If he noticed the large rocks embedded in the rootwad, they may have led him to believe that their weight would keep the rootwad in place when he bucked the tree.

2.2.2 Pivot point

Faller 1 had considerable experience at assessing trees and determining the best locations for bucking cuts. His experience suggests that he should have been able to identify the pivot point and predict how the tree might react. There are a few possibilities that may explain Faller 1's decision:

- He did not believe that once the tree was bucked it would pivot, so he did not choose to buck the tree at or near its potential pivot point.
- He did not anticipate that the heavy rootwad could move and force the tree to pivot uphill.
- He did not anticipate that the tree would break during his bucking cut due to heavy bind, and he underestimated how the sudden release of the bind would dislodge the tree from its position over the ledge and force it to pivot.

The cliff ledge at the pivot point was narrow and uneven, and it sloped significantly. It is possible that Faller 1 felt that it was safer to buck past the pivot point on wider and flatter ground than to buck it at the pivot location. Faller 1 did not buck from his off-side; instead he stood behind the bucking area, which suggests that he did not anticipate that the tree would spring toward him (see Figure 5).

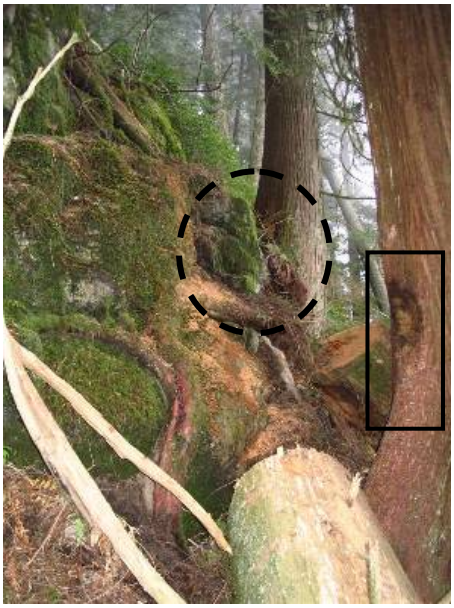


Figure 5: *Pivot point on standing tree shown inside the circle. The rub mark from the blown-down tree appears in the square. The rootwad originally lay behind the rock outcropping, next to the standing tree in the circled area.*

2.3 Compliance with safety requirements

2.3.1 Instruction, training, and supervision

Both Faller 1 and Faller 2 believed that bucking the suspended tree was not unusually difficult, and they conveyed this impression to the Bullbucker. The Bullbucker could have chosen to evaluate the area himself. However, the fallers did not indicate that there was a falling or bucking hazard needing to be overcome. The Bullbucker had previously walked the block but had not observed the trees involved in the incident. At the time, the Bullbucker had only a small group of four fallers to supervise, and so he had plenty of time to complete his supervisory tasks.

When Faller 1 told the Bullbucker that he had to buck the suspended tree that was outside the block boundary, the Bullbucker did not have particular concerns regarding safety. The Bullbucker held a high degree of confidence in Faller 1's ability to make appropriate decisions. He assumed that the main reason that Faller 1 told him about the blown-down tree was because it was located outside the cut block.

Faller 1 had shown that he would refuse to work in unsafe conditions: a few minutes before the incident he decided not to buck a dangerously positioned shattered log and told his falling partner not to buck it. This is some evidence that Faller 1 had the knowledge and training a worker needs to make these decisions, and that he was confident that supervisory personnel would support his decisions.

Overall, SCSS and NCSS had an effective program and active system in place with respect to instructing and supervising the falling crew.

2.3.2 Planning

The investigation found substantial evidence that the forest licensee (as the owner), the prime contractor, and the falling contractors did plan this logging operation with the safety requirements in mind. However, their efforts did not address all the foreseeable risks to workers in the area where the incident occurred. It is a constant challenge for those responsible for planning to identify every hazardous condition in a logging block. They are faced with new and constantly shifting hazards as falling activity progresses. Only Fallers 1 and 2 identified the overhanging tree as a hazard, doing so only once they had started working in the area. No one in a supervisory role identified this specific hazard in a walk-through. Trees were being felled near cliffs along the block boundary, and planners should have anticipated that fallers might have to work right below the cliffs or might decide to work from the cliff ledge to remove the hazard created by the suspended tree.

Before changes to the forestry operations section of the Occupational Health and Safety Regulation came into effect, it broadly required that forestry be planned to ensure safety. The changes expand on the historic requirements and outline the expanded responsibilities of workplace owners and everyone with knowledge and control over particular activities. Also included is more detail about what safe planning must address in order to ensure worker safety.

Better assessment of hazardous areas near block boundaries or the shifting of block boundaries farther away from cliffs could reduce faller exposure to unstable objects on slopes as well as exposure to falls from heights. Planning a barrier area away from cliffs, or developing an effective hazard control plan for these areas, would eliminate the need for fallers to make their own decisions about what is an acceptable level of risk in extreme terrain.

3 Conclusions

3.1 Findings as to causes

3.1.1 Sudden movement of the blown-down tree

Faller 1 was standing on a cliff ledge to buck a blown-down tree that was partly supported on the ledge and partly supported by two standing trees below. When the bucked tree suddenly broke, its rootwad rolled downhill, causing the tree's stem to pivot on one of the standing trees and swing uphill, pinning Faller 1 against the cliff face and inflicting fatal injuries.

3.2 Findings as to underlying factors

3.2.1 Unsafe area for bucking

The cliff ledge on which Faller 1 was working did not have adequate escape routes and was therefore not an acceptable area in which to buck trees.

3.2.2 Faller's actions and hazard assessment did not meet standards

Faller 1 did not adequately assess the hazards at the site and the tree to be bucked. As a result, he made decisions that did not meet the requirements of the Occupational Health and Safety Regulation and the BC Faller Training Standard.

4 Orders Issued after the Investigation

WorkSafeBC issued orders to both SCSS and NCSS after the investigation. An order requires an employer to take steps to comply with the *Workers Compensation Act* or Occupational Health and Safety Regulation, to take measures to protect worker health and safety, or to fix a hazardous condition. An order is intended to ensure that unsafe conditions are identified and corrected and that the employer complies with the Act and the Regulation. An employer may ask the Review Division to review an order; the Review Division may confirm, vary, or cancel an order.

In addition to issuing orders, WorkSafeBC may recommend proceeding with an administrative penalty against an employer. Penalties are fines for health and safety violations of the *Workers Compensation Act* and/or the Occupational Health and Safety Regulation. For information on when penalties are considered and how the amount of the penalty is calculated, see the penalty FAQs on WorkSafeBC.com. Companies that have been penalized are also listed on the web site.

4.1 Orders to the falling contractors

This section summarizes two orders issued to both of the falling contractors, SCSS and NCSS. The investigation found that these two companies were in contravention of the Occupational Health and Safety Regulation, section 26.27(1), which states that fallers and buckers must not work in a location where they or other workers could be endangered by that work.

These companies were also found in contravention of the Occupational Health and Safety Regulation, section 26.26(3), which states that if conventional methods cannot be safely employed to fall a dangerous tree, blasting or other acceptable methods must be used.

5 Health and Safety Action Taken

In addition to the specific actions below, employers, workers, or others in industry may have taken measures to prevent a recurrence of this type of incident. Employers are expected to comply with any orders issued. At WorkSafeBC, the Lessons Learned committee examines recommendations from incident investigations to see what can be done to prevent similar incidents.

5.1 Interfor

Interfor communicated with its logging contractors immediately after the incident to provide what was then known about its causes. Interfor also produced a safety alert for Internet publication by the BC Forest Safety Council. The Council posted it in the safety alert section of its web site, under the category of manual harvesting/bucking. Read it at www.bcforestsafe.org/node/187.

5.2 Contractors

South Coast Standing Stem and North Coast Standing Stem reminded falling crews about the requirement to plan two escape routes and about the right to refuse unsafe work and leave a tree if it cannot be bucked safely.

5.3 BC Forest Safety Council

As a result of several falling fatalities in 2008 — including the one investigated in this report — the BC Forest Safety Council produced two safety alert documents for falling supervisors. These documents are available on the BC Forest Safety Council web site at the following addresses:

http://www.bcforestsafe.org/node/885

http://www.bcforestsafe.org/files/Faller%20Supervisor%20Bulletin%20December%202008.pdf

5.4 WorkSafeBC

WorkSafeBC issued a hazard alert on this incident, which is posted on WorkSafeBC.com: http://www2.worksafebc.com/publications/posters.asp?reportID=35688

WorkSafeBC is also developing an audio slide show on this incident.