

Investigation Report  
Volunteer Struck by Tree  
September 25, 2017

## The contents of this report

This document reports Occupational Health and Safety's (OHS) investigation of a fatality in September 2017. It begins with a short summary of what happened. The rest of the report covers this same information in greater detail.

## Incident summary

In September 2017, a Greater Bragg Creek Trails Association volunteer was felling and bucking up trees on a proposed trail route. While felling a tree, the volunteer was struck by another tree which had been caught up in the tree the volunteer was felling. The volunteer was air-lifted to Foothills medical centre in critical condition. The volunteer passed away shortly thereafter.

## Background information

Alberta Environment and Parks (AEP) is a Government of Alberta ministry, formerly called Ministry of Tourism, Parks, and Recreation. Operationally the AEP ministry is divided into two entities, Alberta Parks and Alberta Environment. Alberta Parks manages provincial parks, parks land and trails, and volunteer activities within and outside of Alberta Parks land.

On March 16, 2009, the Ministry of Tourism, Parks, and Recreation entered into a cooperating agreement with The Greater Bragg Creek Trails Association (GBCTA). The GBCTA would pack skiing tracks, assist with trail maintenance, contribute to trail planning and trail development in the west Bragg Creek area in Kananaskis country.

The GBCTA recruits and coordinates volunteers to support grooming and maintenance of cross country ski trails in the winter, and to support trail planning, trail maintenance, and trail construction activities the rest of the year. The GBCTA provides its own equipment and machinery when performing these trail activities. The GBCTA regularly procures trail construction and tree removal contractors on an as needed basis. From April 2015 to March 2016, GBCTA volunteers contributed 9087 hours. From April 2016 to March 2017, GBCTA volunteers contributed 8573 hours. Approximately 152 GBCTA volunteers assisted with trail maintenance between April 2016 to March 2017.

The deceased volunteer, volunteer 1, began volunteering with the GBCTA in approximately 2015. Volunteer 1 performed various trail maintenance activities such as assisting in building a wooden bridge, clearing brush, trail restoration, and removing fallen trees. In the summer of 2017, volunteer 1 volunteered to operate a chain saw to remove brush, buck up fallen trees, and fell trees located on the proposed Kestrel trail route. Volunteer 1 had previous employment experience managing a trail crew and had performed tree felling and bucking duties.

Volunteer 2 was a long serving volunteer with the GBCTA. Volunteer 2 began volunteering with the GBCTA in approximately 2013 and performed regular trail maintenance duties. In April 2017, volunteer 2 was asked to assist with contractor procurement for the construction of Kestrel trail. Volunteer 2 volunteered approximately 300 hours in 2015 and 150 hours in 2016.

Volunteer 3 was a long serving volunteer with GBCTA. Volunteer 3 was the Coordinator of Implementation for the all-season trails. Volunteer 3 had been in this coordinator position for approximately 2 years and volunteered approximately 1100 hours in 2015 and 1160 hours in 2016.

Volunteer 4 was the GBCTA's volunteer coordinator. Volunteer 4 volunteered approximately 170 hours in 2015 and 250 hours in 2016 with the GBCTA.

The trail supervisor for the bow district in central Kananaskis country was an Alberta Parks employee. The trail supervisor was the chain saw awareness course trainer and the tree felling course trainer for the Kananaskis area of Alberta Parks. The trail supervisor had historically taught chain saw awareness courses to GBCTA volunteers.

## **Equipment and materials**

### **Dolmar chain saw (chain saw)**

The chain saw being operated at the time of the accident was a 2009 DOLMAR PS-420 40 centimetre (cm) (16 inch) portable gasoline chain saw (Figure 1). According to the operator's manual, the PS-420 complied with American National Standard Institute B 175.1-2000 chain saw safety standard, Canadian Standards Association (CSA) Z62.1-03 chain saw safety standard, and CSA Z62.3-04 chain saw kickback standard.



Figure 1. Dolmar PS-420 chain saw

A. Dolmar PS-420 chain saw used by volunteer 1 to clear trees

### Sequence of events

The GBCTA proposed a new trail that would link two existing trails, Merlin View and Tom Snow. This new trail would be approximately 4.2 kilometres in length and be called Kestrel. The GBCTA 2017 Kestrel trail construction proposal to Alberta Environment and Parks identified significant tree blowdown removal and brush clearing would be required. The GBCTA proposal identified the need to hire contractors to remove the trees and to perform the trail excavating. The GBCTA was to financially cover all the costs associated with constructing the Kestrel trail. On June 9, 2017, Alberta Environments public lands division granted a temporary field authorization permit approving the construction of Kestrel trail.

Volunteer 2 assisted in construction planning, contractor procurement, and labour coordination for the Kestrel trail construction. During the planning stages, volunteer 2 contacted several tree removal companies and provided them with the work site information including the areas where there was a significant amount of blown down trees. The Kestrel trail construction was estimated to start the middle of July, depending on the procurement of a chain saw crew. All the tree removal companies that were contacted were not available or declined the tree removal work.

## Final Report

On or about June 30, 2017, GBCTA volunteers commenced clearing blown down trees off the proposed Kestrel trail as they were not able to procure a tree removal company. Approximately a month and a half later, a contracted excavating company, Phoenix Treatment Systems Ltd., began excavating the Kestrel trail using a mini-excavator.

On the morning of September 25, 2017, volunteer 1, volunteer 2, volunteer 3, and a volunteer labourer arrived to continue trail clearing on Kestrel. Prior to September 25, 2017, volunteer 1 had operated a chain saw clearing trees, felling trees, and clearing bush on the Kestrel trail for approximately 5 days. At approximately 12:20 p.m., volunteer 1 came upon an uprooted dead tree on or near the proposed Kestrel trail. The tree (tree 1) was approximately 21.5 cm (8.5 inches) in diameter, partially uprooted and leaning away from the trail at approximately a 45 degree angle. Volunteer 1 fell tree 1 in the direction it was leaning but it became caught up on an adjacent tree (tree 2).

Volunteer 1 moved over to tree 2, which was a live tree approximately 15 cm (5.9 inches) in diameter, and cut a notch and then directionally fell tree 2 away from the trail. Tree 2 became snagged onto an adjacent tree resulting in both trees leaning on a third tree (tree 3). Volunteer 1 continued further away from the designated trail route over to tree 3 which was approximately 12 cm (4.7 inches) in diameter. The volunteer fell tree 3. The three trees became caught up on another tree (tree 5) which was caught up on top of another tree (tree 4). Volunteer 1 continued further into the bush to tree 4 which was approximately 14 metres (m) away from the flagged trail corridor. Tree 4 was dead, approximately 12 cm (4.7 inches) in diameter, and had an upper v-top wedged onto another tree. Tree 4 was positioned below tree 5, preventing all four trees from falling. The ground surface near the base of tree 4 had blown down dead trees and numerous shrubs present. Volunteer 1 positioned himself next to tree 4 and cut through tree 4 in a single pass causing all five trees to fall. Volunteer 1 egressed a short distance but was struck on the head by the top of tree 5 which had been caught up on top of tree 4 (Figure 2). Volunteer 1 was not wearing any type of head protection when volunteer 1 was struck. The tree top that struck volunteer 1 was approximately 9 cm (3.5 inches) in diameter.





Figure 2. The tree that struck volunteer 1

- A. The final tree, tree 4, that volunteer 1 cut prior to the incident
- B. Top of tree 5 that struck volunteer 1. Tree 5 is identified by a #5 evidence marker
- C. Underbrush and blown down tree's located near tree 4

The volunteer labourer that was assisting volunteer 1 was positioned approximately 16 m away and witnessed the tree strike volunteer 1. The volunteer labourer advised volunteer 2 to call emergency services. Volunteer 2 contacted Kananaskis' public safety emergency department. Volunteer 1 was extracted from the remote work site by a public safety rescue helicopter crew and mobilized to a near-by field where volunteer 1 was transferred to a STARS helicopter. Volunteer 1 was air-lifted to Foothills Medical Centre in critical condition. Volunteer 1 passed away shortly thereafter at the hospital.

### Completion

A review for enforcement action was completed on March 21, 2019, and it was determined that the file would be referred to Alberta Justice for their review. On June 11, 2019, Alberta Justice determined that OHS legislative charges would not be recommended against the GBCTA or Alberta Environment and Parks.

Final Report

**Signatures**

ORIGINAL REPORT SIGNED

October 4, 2019

Lead Investigator

Date

ORIGINAL REPORT SIGNED

October 4, 2019

Manager

Date

ORIGINAL REPORT SIGNED

October 4, 2019

Director

Date