

Truman Gulch Avalanche Fatality

1 skier caught, partially buried and killed
Bridger Range, MT
Custer-Gallatin National Forest – February 26th, 2019

SYNOPSIS

On February 26, 2019 a 36 year old male skier (Skier 1) was caught and killed in an avalanche on the west side of the Bridger Range near Bridger Bowl Ski Area. Skier 1 accessed backcountry terrain by riding the Schlasman's Chairlift at Bridger Bowl before leaving the ski area boundary to the west. At approximately 1400 hours Skier 1 dropped into a northwest facing slope at the top of the St. Lawrence Slide Path and made one ski cut without results before entering the main path. After two or three turns the slide broke above him which caught and carried him approximately one thousand vertical feet through trees where he came to rest near the toe of the debris. The slide was witnessed by two skiers (Skier A and Skier B) who were ascending a skin track nearby. Skiers A and B immediately transitioned into downhill ski mode, began a search and quickly picked up a transceiver signal which led them to a hand sticking out of the snow. They uncovered Skier 1 within 10 minutes and began CPR which was unsuccessful. Skier 1 died of trauma. The slide broke 1-3' deep, 150' wide and ran a total 1,000' vertical. The avalanche is classified SS-ASu-R3-D2.5-O.

GPS coordinates and elevation:

Crown: 45°48'21.06"N, 110°56'8.78"W (8,400' elev.)

Approximate Location of the victim: 45°48'33.14"N, 110°56'23.82"W (7,400' elev.)

Photos:

<https://www.mtavalanche.com/images/19/west-side-bridgers-avalanche-fatality-1>

<https://www.mtavalanche.com/images/19/west-side-bridgers-avalanche-fatality-2>

<https://www.mtavalanche.com/images/19/west-side-bridgers-avalanche-fatality-3>

<https://www.mtavalanche.com/images/19/west-side-bridgers-avalanche-fatality-4>

<https://www.mtavalanche.com/images/19/west-side-bridgers-avalanche-fatality-5>

<https://www.mtavalanche.com/images/19/west-side-bridgers-avalanche-fatality-6>

Video:

<https://youtu.be/3rSg4pkiqu>

WEATHER

Snowfall and temperature data are from Bridger Bowl's Alpine weather station located 1.7 miles NNE of the accident at 7,390', and the Brackett Creek SNOTEL site located 5.6 miles N of the accident at 7,320'. Both weather stations are on the east side of the main Bridger Range ridgeline, whereas the accident was on the west side. Wind data is from the Bridger Bowl Ridge weather station, located approximately 0.8 miles NE of the accident site at an elevation of 8,530' on top of the Bridger ridge.

On January 23 or 24 a large avalanche occurred on the same path as the accident. This slide broke on facets in the middle of the snowpack and propagated full width of the path, removing at least half of the early season snowpack. Between January 23 and the day of the accident, the Alpine weather station recorded 5.7" snow water equivalent (SWE) and the Brackett Creek SNOTEL site recorded 6.6" of SWE. During the first four days of this period the area received 2-3" of SWE, which was followed by no precipitation from January 27 to February 3. From February 3 through February 15 both stations recorded steady precipitation, which totaled 1.1" of SWE at Brackett Creek. Between February 18 and 20 the Alpine station received 0.8" SWE. During the three days prior to the accident, snowfall totaled 0.4" of SWE at Alpine and 1" of SWE at Brackett Creek. This snow was very low density, with snowfall totals exceeding 1.5-2'. Temperatures were sustained below-average for this time of year. Daily maximum temperatures at the Brackett Creek station ranged from 1 to 20 degrees F and daily minimum temperatures ranged from -11 to -15 F during the three days prior to the accident.

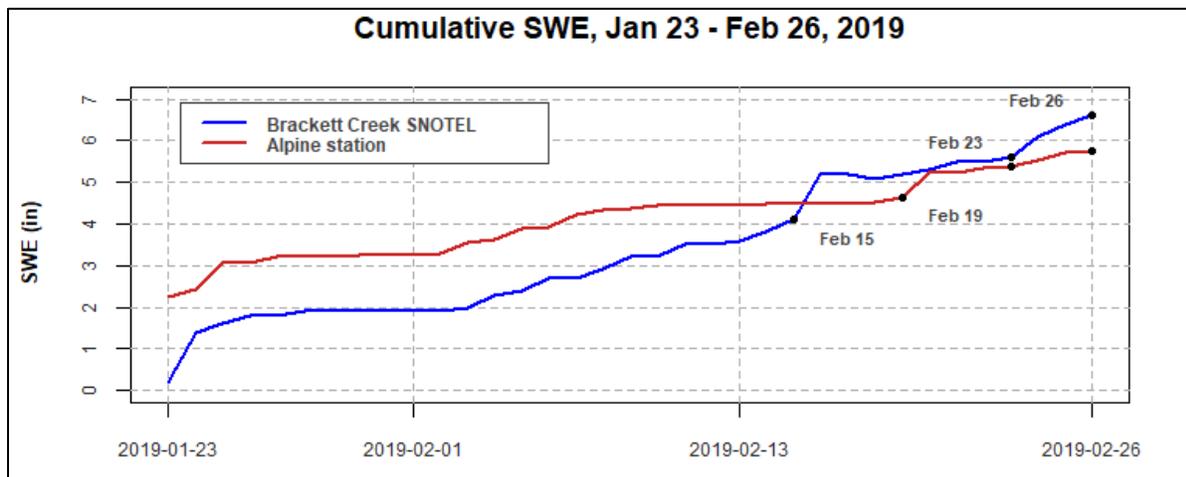


Figure 1: Snow water equivalent (SWE) at the Brackett Creek SNOTEL site (blue line) and Alpine weather station (red line) for the period extending from January 23- Feb 26.

Winds were out of the southeast on the afternoon of February 25 (Figure 2). The evening of February 25 into early February 26 wind speed increased and shifted to a southwesterly direction. Average wind speed remained moderate at 5-18 mph through February 26.

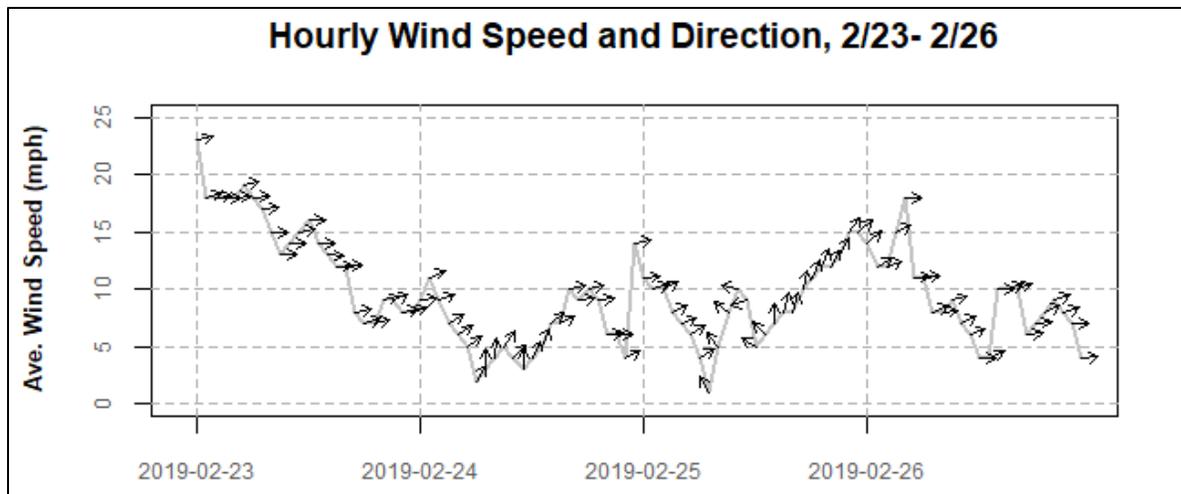


Figure 2: Wind speed (indicated by the gray line) and direction (indicated by the black arrows) for the three days preceding the accident.

SNOWPACK

The avalanche occurred at 8,400' elevation on a northwest aspect. The slope angle was estimated to be 36-38 degrees. The slide broke 1-3' deep, 150' wide and ran 1,000' vertical (measured on Google Earth). The avalanche is classified SS-ASu-R3-D2.5-O.

The slide occurred on the west side of the Bridger Range, which typically has a shallower and weaker snowpack than the east side. The GNFAAC was unable to access the crown due to dangerous avalanche conditions. We assume the weak layer was faceted snow near the base of the snowpack. This slide path ran naturally during a significant avalanche cycle on the 23rd or 24th of January (SS-N-R4-D3-I), which likely created a shallow snowpack that became weak and faceted during below average temperatures the first two weeks of February. From February 13th to February 26th this weak snow was loaded by a series of storms that dropped 3" of SWE.

In addition to steady snowfall, wind-drifted snow added more weight to a buried persistent weak layer. During the three days prior to the accident, moderate south and east winds loaded this particular slope. The combination of a buried persistent weak layer and a heavy load of new and wind-blown snow created an unstable snowpack structure.

On February 26th the avalanche danger in the Bridger Range was rated Considerable on wind-loaded slopes and Moderate on non-wind-loaded slopes. The GNFAAC forecast for that day noted, "1-2' deep wind drifts will be easily triggered... [and] you could also trigger a much larger avalanche on weak layers deep in the snowpack".

GNFAAC Avalanche Advisory for February 26th, 2019: <https://www.mtavalanche.com/forecast/19/02/26>

AVALANCHE

On February 26, 2019 a 36 year old male, solo skier (Skier 1) gained the Bridger ridge via the boot pack above the Schlasman's lift at Bridger Bowl and exited the ski area boundary to the west. He descended

without incident a lower angle ridge north of the slope that later avalanched. At the bottom of this run, he met two other skiers (Skier A and Skier B) who had skied a similar line. They had not planned to meet. The three skiers discussed their run and felt confident about good snow stability. They transitioned to uphill travel mode and skinned up a safe route with the intention of skiing another run in the same area. Skier A and Skier B had left a car at Truman Gulch Trailhead, approximately three miles to the west of the accident site, with the intention to ski out at the end of the day and not return to the ski area.

During their ascent Skier 1 moved faster and remained on his own, separate from Skiers A and B. At approximately 1400 hours Skier 1 removed his skins and dropped into a steeper, more exposed northwest facing slope at the top of the St. Lawrence slide path. Skiers A and B were still ascending on the skin track and had stopped to eat. At the top of the slope Skier 1 made one ski cut without results before dropping into the main path. After making two or three turns he triggered the avalanche which propagated above him and carried him roughly 1000 vertical feet through small dense trees. He came to rest near the toe of the debris.

Skier A witnessed Skier 1 drop in and trigger the slide. Skier A and B watched Skier 1 disappear in the fast moving debris.

Skiers A and B immediately transitioned to downhill ski mode in order to start a search. While descending, Skier A triggered a small slide while traversing a steep slope leading to the debris. Skier A was not caught in this slide. Once on the debris, Skiers A and B began a transceiver search, picked up a signal within 10 minutes and were led to a hand sticking out of the snow. They quickly uncovered Skier 1 and began resuscitation efforts. There was obvious trauma to the head and face of Skier 1 which made CPR difficult. At 1407 hours Skier B called Bridger Bowl Ski Patrol to inform them of the accident. After 10-15 minutes of CPR Skiers A and B felt uncomfortable in the slide path and moved skier 1 to a safer location. They continued CPR for another half hour to 45 minutes. Bridger Bowl Ski Patrol was in contact with medical control and received approval for the rescuers to stop CPR due to obvious trauma and significant time since the burial. Efforts to revive Skier 1 were unsuccessful.

All three skiers were familiar with the terrain and each carried an avalanche beacon, shovel and probe. Skier 1 was wearing a helmet, but the forces in the fall destroyed it.

RESCUE

Times are from the Bridger Bowl Avalanche Incident Dispatch Log and Gallatin County SAR Dispatch Log.

At 1407 hours Bridger Bowl dispatch received a cell phone call from a skier who witnessed and responded to an avalanche on the west side of the range. They had extricated the skier and were starting CPR. Bridger Bowl notified Gallatin County Search and Rescue (GCSAR) who then took over operations and deployed a two-pronged plan of action. A ground team of four rescuers led by Eric Knoff (GCSAR member and GNFAC staff) skied up Truman Gulch to either arrive at the accident site or intercept the two skiers as they descended. At the same time, Doug Chabot (GCSAR member and GNFAC staff) and two SAR members drove to the Central Helicopters hanger. At 1605 hours Doug and one other SAR person launched with less than 1 mile visibility. After a short flight they were able to spot the

avalanche and two rescuers at the toe of the debris. SAR dropped a radio to them and established communication at 1616 hours. The helicopter flew to the trailhead and dropped off the two SAR members who hooked up a long line and cargo net under the ship. The helicopter flew back to scene, dropped the net and returned a few minutes later to extricate the victim. The ship then flew to the trailhead with the deceased and arrived at 1645 hours.

The ground team intersected Skier A and Skier B approximately 3 miles up the trail at 1703 hours. They all skied down, and snowmobiles towed them back the last 1.3 miles. All parties arrived at Incident Command Post at the trailhead at 1803 hours.

INVESTIGATION

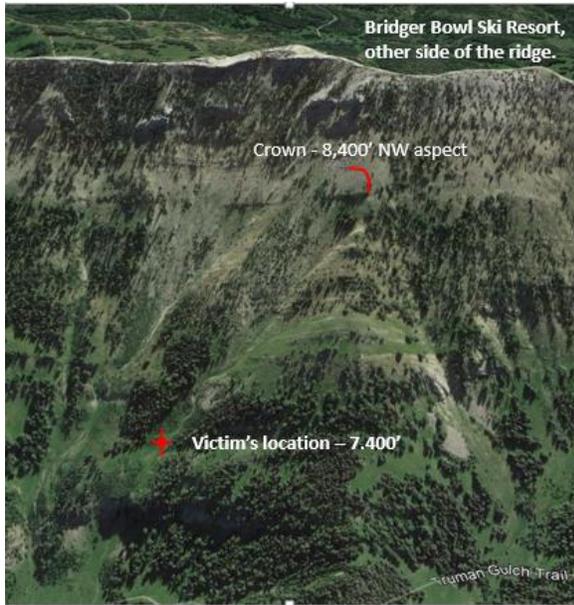
Doug Chabot and Eric Knoff of the GNFAC obtained details of the accident during the recovery efforts and through interviews with the initial rescue party on February 26th.

Any questions should be directed to:

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The skier entered the top of Truman Gulch, where the slide occurred, from Bridger Bowl Ski Area.



The crowns of the avalanche are in red and the X marks the approximate location of the burial.



The upper crown line was 3' deep and 150' wide. The lower crown was likely triggered by the skiers entering the slope to perform a search.



The upper crown as seen in the distance from the helicopter.



The slide was 3' deep and 150' wide. This picture is foreshortened.



This is the lower crown in the photographs. The skin track is on the ridge above the crown.