

TRUMAN GULCH AVALANCHE FATALITY
1 snowboarder caught, buried and killed
Gallatin National Forest
14 February 2011

SYNOPSIS

Two snowboarders ascended Truman Gulch on the west side of the Bridger Range to within 300 vertical feet of the ridgeline. Descending one at a time, the second rider down the slope triggered an avalanche which swept him down a narrow gully filled with bands of small trees. He was buried under more than five feet of debris and did not survive. The slope angle was 45° at its steepest and the runout angle was 31°. The crown face was up to three feet deep and the slide was 50 feet wide and ran 1,300 feet vertical. US Classification of the avalanche is HS-ARu-D2-R4.

GPS Information

Crown Location: N 45.80933, W 110.93343

Elevation of crown: 8380 feet.

Victim Location: N 45.81092, W 110.94022

Elevation of Victim: 7200 feet

PHOTOS

Crown 1: <http://www.mtavalanche.com/images/11/truman-crown>

Crown 2: <http://www.mtavalanche.com/images/11/truman-crown-tapers>

Looking up the slope: <http://www.mtavalanche.com/images/11/truman-looking-path-crown>

Looking down the path: <http://www.mtavalanche.com/images/11/truman-looking-down-path>

Aerial of terrain: <http://www.mtavalanche.com/images/11/truman-avalanche>

VIDEO

http://www.youtube.com/watch?v=mRnCmc_EMpQ

WEATHER

The snowfall, temperature and wind data for this incident are from the Bridger Bowl Ski Area whose boundary is at the ridgeline, 300 feet above the crown.

The most recent snowfall was one inch that fell on Thursday, February 10th. Earlier that week, from Saturday, February 5th to Tuesday the 8th, a storm dropped 30 inches of snow. Extreme winds blew from the early hours of Saturday, February 12th through Sunday the 13th. At the ridgetop wind speeds averaged 35-40 mph with gusts of 60 mph out of the west. The Bridger Lift anemometer, 500 feet below the ridgetop on the east side of the range, recorded south-southeast winds that averaged 25 mph

with gusts regularly hitting 50 mph. The air temperature on the ridge at the time of the accident was 34°F under clear skies with 38% relative humidity.

AVALANCHE

At 0845 “A1” (22), his dog, and “B2” (22) left the Truman Gulch trailhead on the west side of the Bridger Range. A1 was skinning uphill on his splitboard while B2 snowshoed. Both had shovels and helmets, A1 had a probe and both wore avalanche transceivers (A1 had a Pieps DSP; B2 had a Pieps Freeride). This was A1’s 6th time at Truman Gulch this season. He preferred to access this area from the bottom. Only once had he been there from the adjacent Bridger Bowl boundary. As they ascended the skin track they dug a few hand pits and noticed nothing noteworthy. They saw no recent avalanches, had no collapsing or cracking. A1 subscribes to the Gallatin National Forest Avalanche Center’s (GNFAC) daily avalanche advisory and had read that day’s posting which warned of wind-loading and a Moderate danger. Three hundred feet from the ridgetop they crossed a gully and dug two snowpits; one near the center, another near the south edge. Depth was 180-200 cm and they got CT12 under the wind slab. They knew that wind-loading was their primary avalanche concern. They discussed descending the broad ridge to the south of the gully (skiers left) as being the safest line. A1 had the most backcountry experience and informed B2 that if he got caught in a slide he should try and ride out of it; failing that he should attempt to release his bindings. (Both A1 and B2 had taken the Basic Avalanche Awareness course taught by the GNFAC and Friends of GNFAC. A1 took it three winters ago while B2 attended this season.)

Descending one at a time, A1 went first. He boarded over 1,300 feet, almost to the bottom of the slope. He waited a few minutes for his dog to catch up when he saw an avalanche powder cloud come down the gully. He put on his skins and went to the toe of the debris. He did not get a signal, so he dialed 911 since he knew the rescue was not going to be simple. He continued up the debris until he got a signal. He hit B2’s boot with his probe and began digging. Responding to the 911 call, which got routed to Gallatin County Search and Rescue (GCSAR), Bridger Ski Patrollers Pete Maleski arrived at the scene first, followed minutes later by Phil Scamma. Excavating B2 was difficult because the hard slab debris was dense. Nine minutes later they had B2 extricated, but he was deceased. B2 was in a face down, head downhill position with his foot 1-2 feet from the surface and his head 5+ feet deep. A1 noted that B2’s binding looked like he intentionally released it before getting fully immersed in the avalanche.

The terrain in Truman Gulch is complex and the snowpack is highly variable. Steep ridges and gullies lead into trees and over cliffs. The terrain demands constant attention to navigate safely and even small avalanches can result in serious injury or death. Sixty mph winds cross loading this terrain created hard slabs on the edges of gullies which further complicated snowpack analysis. The avalanche broke above their highest point (did it break there or propagate to there?) and wiped out their two snowpits and area where they geared up to descend.

I interviewed A1 in person the day of the accident. The next day Mark Staples, Eric Knoff and I (GNFAC), Karl Birkeland (National Avalanche Center), Randy Elliott (General Manager, Bridger Bowl) and Pete

Maleski (Snow Safety Director, Bridger Bowl) went to the crown. Staples, Knoff and I continued to the bottom.

SEARCH AND RESCUE

Gallatin County Search and Rescue was notified at 1300 hours via a 911 cell phone call from A1. A page went out to Bridger Bowl Ski Patrol which dispatched snow safety director Pete Maleski and patroller Phil Scamma to the accident site. The rode the Schlasman's Lift to the ridge and descended the west side. At 1337 Maleski arrived on the scene. At 1340 he radioed that they had dug out a hand and foot. At 1346 the victim was extricated and at 1352 he was declared dead. GCSAR dispatched a helicopter to evacuate the body. The two patrollers and A1 skied out to the trailhead.

SNOWPACK

Mark Staples, Eric Knoff and I dug a snowpit in the crown of the avalanche. The slope angle ranged from 35-45° with an average angle of 40°. The aspect was 330° north-northwest. The crown height ranged from 100 cm to 0 cm, averaging 50 cm. The overall snowpack depth ranged from six feet deep on the southern edge to three feet deep on the north side. Pencil to 1-finger hardness wind slab was sitting on a thin, less than 1 cm thick layer of small, .5 mm mixed forms. This was the most unstable layer in the snowpack. The bed surface was pencil hardness. Strong winds during the previous 72 hours had loaded many east and north facing slopes. Southerly winds had cross loaded the sides with hard slabs of windblown snow. At the southern edges these slabs were thick, in this case three feet deep, sharply tapering to mere inches in the center of the gully 40 feet away. A compression test failed at CT26, Q1 on the layer of mixed forms, but this result is suspect since stability tests in crowns can falsely show stable results. In the center of the gully the thin slab was on top of weak facets, a likely spot to trigger a hard slab avalanche.

The GNFAC had rated the avalanche danger MODERATE the day of the accident.

Avalanche Advisory: <http://www.mtavalanche.com/advisory/11/02/14>

Snowpit Profile: <http://www.mtavalanche.com/images/11/truman-gulch-snowpit-profile>

Direct any questions regarding this report to me at dchabot@fs.fed.us or 406-587-6984.

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