

Tunnel Creek Avalanche Accident

March 27, 2011

Date: 2010-3-27

Submitted by: Patty Morrison (Stevens Pass Snow Safety) and Mark Moore (NWAC)

Place: West side of Cowboy Mt, Tunnel Creek Drainage to west of Stevens Pass Ski Area, north-central WA Cascades, King County

Slope specifics: 3,900 ft elevation, NW aspect, 38 degree slope angle

State: WA

Country: USA

Fatalities: 1

Summary: 1 snowboarder triggered wet loose slide on open, convex roll. Victim caught, swept into stand of small trees and sustained fatal injuries. Members of party found the partially buried victim within 2-3 minutes and uncovered his airway within 5 minutes. Victim was already blue and did not respond to CPR.

Accident and SAR Summary:

Party of four advanced snowboarders (10-15 years experience each with ages in early 20's) left the back side of Stevens Pass from the top of Cowboy Mtn in the mid-late afternoon, planning to ride down to the switchback on US Highway 2 and hitch back to the ski area. Two of the party had probes, beacons and shovels and two did not (including the victim, though having such equipment would not have made a difference in this event). According to a blogpost by one member of the group, the accident unfolded as follows [thanks to Pipedream (Aaron Miller) for permission to republish this narrative]:

We were riding off the backside of Cowboy Mountain coming down the final 800 or so vertical feet of a zone known locally as Tunnel Creek. To get to the zone you have to climb to the top of the ridge above the 7th Heaven chairlift and since there is no snow control performed back there whatsoever, we dug a pit at the top of the ridge. We didn't observe any significant instability so we strapped in and dropped into the bowl on the backside. The snow was fantastic...heavy spring powder up to your knees and a firm crust underneath which the snow had bonded well with. As we got down below the 4,000' level of elevation the snow got very soft and wet, turning into deep spring corn. The last 800 vertical feet or so to the logging road which takes you back to the highway follow underneath a powerline. There's an access road which zig-zags underneath the lines and we were ripping off the top of that, catching some air.

The first friend hit it and it was all good. Then the victim hit it and landed in the backseat. Like any of us would do he hammered a hard heelside turn to get his balance back and that's when the slide started. It was a shallow wet slide but it grew rapidly and pushed him down to the left side of the clearing and into the trees. We went into rescue mode immediately. Since he wasn't wearing a beacon we had no other choice than to slide down the avy path yelling and looking.

We found him within a minute, partially buried wrapped around a tree. We had his face unburied within the first 2 minutes and he was all blue and not breathing. We extracted him within another minute or so and had him on his back. At this point the 3rd group member was already calling 911 and was being redirected to Ski Patrol to discuss our location and options. After checking his vitals and finding no pulse I immediately began CPR (within the first 5 minutes of the accident). His airway was totally free of snow and obstructions but despite our efforts we couldn't bring him back. Not knowing what to do and talking to the 911 dispatchers, we just kept doing CPR, not willing to give up.

About 30 minutes in, the 3rd group member was sent out to the clearing to flag down the rescuers. Unfortunately they had incorrectly guessed our location and didn't arrive for almost 90 minutes. I was still doing CPR when they arrived, utterly exhausted but still clinging to some hope. After patrol examined him with a portable AED and administered CPR for 15 minutes or so they pronounced him dead. Other patrollers came behind with a toboggan to extract the victim. In doing so they triggered another small wet slide which propagated into the zone we were in and partially buried me and the two patrollers as well as sent my snowboard and one patroller's skis down the hill. One of the other members of our group was able to extract the patrollers and myself.

About 3 hours after the accident happened we finally got the toboggan in. As it was getting dark and it was apparent that it was going to be a long haul out with the toboggan, Patrol split up to escort us out to the highway. Since I had no snowboard, I had no option other than to ride the victim's board down and look for my own gear. By the time we reached the logging road below it was pitch black. A patroller waiting down on the logging road to guide everyone out said they'd found my gear and they were bringing it down for me. My other two friends and a patroller headed out to the highway while I waited. Finally, I swapped the victim's board for mine and left with the patroller who brought my gear out for the highway... carrying the victim's board with me. We reached the highway about 5 hours after the accident occurred and spent the next hour talking to the sheriff, forest service ranger, and head of Patrol. After they got statements regarding the accident and our contact information they let us go home.

The ride home was an emotional one and even though we didn't want to talk or even think about what happened, human nature forced us to. Turns out the victim was only 20... he'd never tasted a beer at a bar, had a steady girlfriend or graduated college. We didn't get home until after midnight and I doubt many of us slept more than a handful of hours. Since waking up this morning I've gotten several calls from the media I've turned down as well as comforting calls from friends and family. The victim was a member of the snowboard club at school, as were the rest of us involved with the tragic incident, so it's hitting a lot of people hard. Today is the first day of what should be my last quarter in school yet I can't motivate myself to get to campus much less class. It's going to be a hard spring around here... thanks for all the wishes and prayers, guys.

Incident Photos:



Incident overview: Slide began just below power line tower in upper left of photo

Slide triggered by boarder jumping off the lower bank of the power line access road that switch-backed up the hill



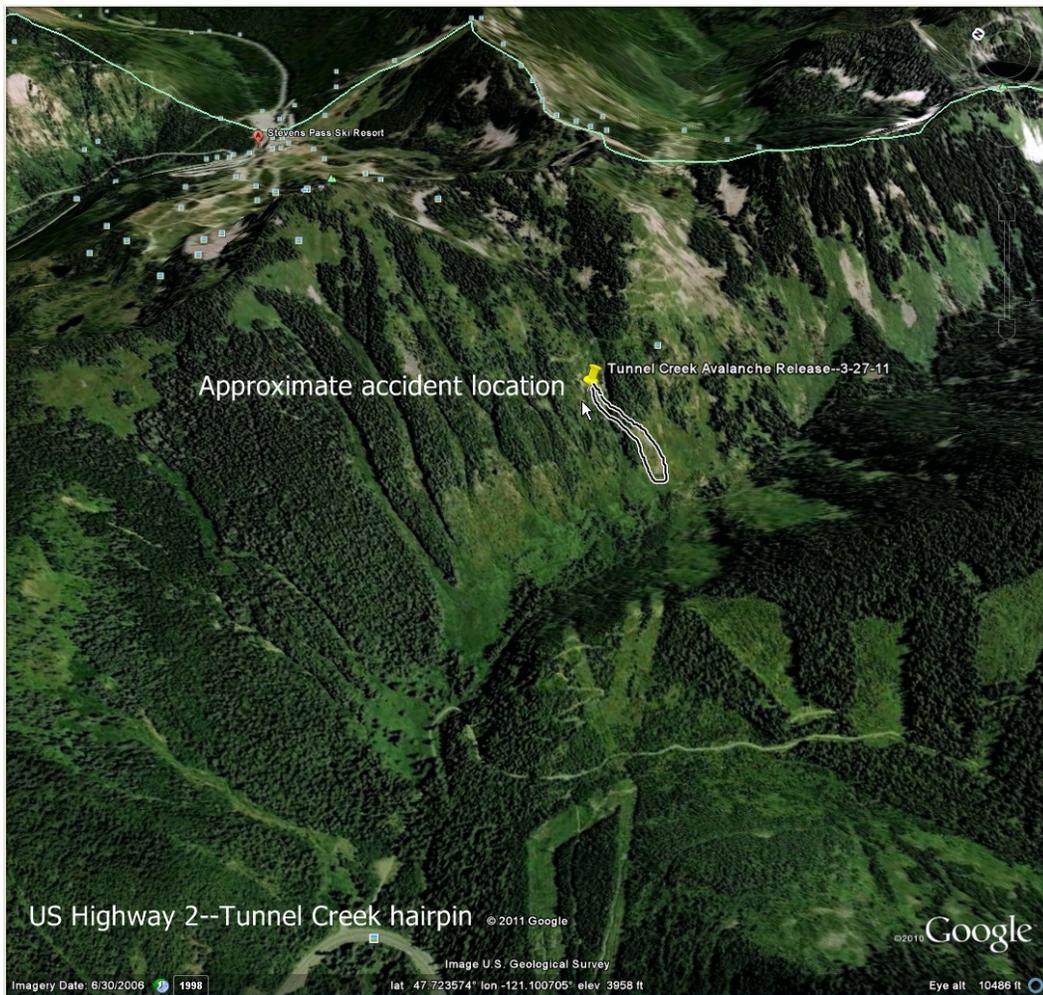
After catching the victim, the resulting wet loose slide entrained increasing amounts of wet weak near surface snow and flowed into the tree band pictured in the center left of the photo.

Avalanche path as it descended into the tree band...



Victim found wrapped around this tree, uncovered within 3-5 minutes and given CPR for over 90 minutes. Unfortunately the victim did not respond.

The wet loose avalanche continued through tree band and deposited much of its debris on the slope below the stand of trees.



Google Earth map showing approximate location of avalanche start and estimated path of avalanche, with Stevens Pass ski area in the upper left and the US 2 Tunnel Creek hairpin in the lower foreground of the map.

Weather and Snowpack Summary:

During the week prior to the event, the long wave trough position lay almost stationary just off the west coast with the strongest flow into California and across the southwest US. Further to the north, weakened storm remnants circulating northward over Washington State produced intermittent mainly light snowfalls at relatively low freezing levels near the Cascade crest along with brief incursions of moderate easterly winds. Cumulative snowfall of about 12-14 inches was recorded from the 21st through the 27th at the nearby Stevens Pass WSDOT observation plot at the 4000 ft level, with this snowfall subject to considerable warming and melt during periods of partial clearing that followed each weak disturbance.

Ancillary Avalanche Information:

The avalanche forecast issued by the NWAC on the day of the event (3/27/01) indicated that for Sunday “increasingly dense snow or rain should further load or weaken the already weak upper 12 to 16 inches of near surface snow and increase the potential for both natural and human triggered loose or wet loose slide activity.” However, according to the witness account below, the riders were aware of the increasingly wet snow conditions encountered below 4000 feet as they descended toward US 2. Unfortunately a bad landing resulting in a hard turn were enough stress to start a small wet loose slide that subsequently caught and carried the victim into a terrain trap (small stand of trees).

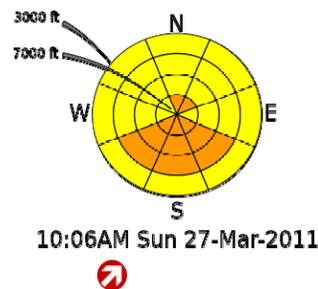
The strong destabilizing effects of even early spring radiation or direct sunshine on recent snow cannot be overemphasized and should always be considered when descending into lower elevation terrain that may not have the cooling effects of winds near higher ridges.

WA Cascades near and west of crest - between Stevens and Snoqualmie Pass

Danger Rose for Sunday



Danger Rose for Monday



Click [here](#) for complete definitions of the avalanche danger scale.

Forecast

Sunday and Sunday night: Moderate avalanche danger below 7000 feet except slightly enhanced danger on west and northwest exposures above about 6000 feet. Danger increasing Sunday and becoming locally considerable on north through northeast facing slopes above 6000 feet and increasing moderate elsewhere. Danger slightly decreasing Sunday night.

Monday and Monday night: Locally considerable danger on northwest through northeast facing slopes above 6000 feet otherwise moderate danger below 7000 feet early Monday. Danger increasing to locally considerable on sun exposed terrain late morning and afternoon hours, otherwise little change in the moderate danger. Danger slowly increasing Monday night into Tuesday.

Snowpack Analysis

Generally small amounts of new snow were received in most areas on Saturday with amounts ranging from about 3-5 inches in the central Cascades, and up to 6 inches in the southern Cascades. Along with relatively low freezing levels and briefly increased ridgetop winds, strongest in the south and central Cascades, this weather produced generally increasing avalanche danger. Recent wind deposits should be slightly enhanced on west and northwest exposures above about 5 to 6000 feet from the strong easterly winds early to mid Saturday. On such lee slopes moderate danger has trended toward considerable with human triggered soft slabs of 6 to 12 inches possible to likely, with most running on an old crust from Friday or some lighter snow layers received late last week. Meanwhile at lower elevations, field observations indicate minimal or no crust formation along with much increased boot penetration compared to the increased crusts reported on Saturday, with up to 12 to 16 inches of soft wet, near surface snow available for release or entrainment.

Detailed Forecasts

Sunday and Sunday night

Light to moderate rain or snow in the south should spread northward Sunday morning. Along with slight warming and slightly increasing ridgetop winds this weather should slowly increase existing danger. The greatest wind associated danger should slowly shift from west and northwest exposures onto north and northeast facing slopes at higher elevations; meanwhile at lower elevations, increasingly dense snow or rain should further load or weaken the already weak upper 12 to 16 inches of near surface snow and increase the potential for both natural and human triggered loose or wet loose slide activity. With little change in the freezing levels, light to moderate winds and light to moderate rain or snow Sunday afternoon, this should allow for a further slight increase in the generally moderate to locally considerable danger, mainly on higher elevation north through northeast facing slopes.

Decreasing winds and decreasing light showers overnight should combine with lowering freezing levels to allow for a slight decrease in the danger as loading rates decrease, shallow slabs begin to settle and stabilize at higher elevations, and a weak surface crust develops on previously wet surface snow at lower elevations.