



Local Catastrophe

The Starrigavan Valley Landslide

What happened?

Late on September 18th or early on September 19th, a landslide rumbled more than 1,000 feet down the south side of Starrigavan ridge. The Forest Service estimated the slide area to be 70-100 acres in area! Unfortunately, the debris didn't stop at the valley bottom, but continued along the stream bed, filling and destroying several Forest Service salmon-rearing ponds and dumping logs over a bridge along the nearby ATV trails. As it sought a way through the debris, Starrigavan Creek started to follow one of the ATV roads, further damaging FS fish-rearing infrastructure and cutting a channel more than a meter deep in a matter of weeks. Damage to FS recreation and restoration infrastructure aside, this landslide has radically changed the look of Starrigavan Valley. What factors came together to cause this? Keep reading to find out.

Why did this happen?

Starrigavan Valley has many of the risk factors associated with landslides: glacially scoured bedrock with thin soil cover, steep slopes, and a lot of rain. But that accurately describes almost everywhere near Sitka. What triggered this slide in this spot? One possibility is that there was a "microburst" of intense rain. While Japonski Island only recorded 3.5 inches of rain on the 18th, some gauges in town filled to 7 inches. There weren't any rain gauges at the time in Starrigavan (SCS has since installed one), but it's very possible that the valley also had much higher rainfall during the storm since the valley is colder and wetter than Sitka on average. The slope, while uniformly quite steep, has a small depression where the slide started, a feature which focuses groundwater and is often a factor in slope failure. The takeaway? Too much water to drain effectively sitting on a perfect sliding board of bedrock!



The scour zone of the slide

Why didn't this happen?

It's equally important to know what DIDN'T cause the Starrigavan landslide as to know what did cause it. Here are two common factors for landslide initiation that were not major contributors to the Starrigavan Valley slide:

1) Logging: Starrigavan Valley was extensively logged from 1968-1974 and sporadically until the early 1980s. It's natural to wonder whether that logging was a distant cause of this landslide, but that does not appear to be the case. The landslide started in old growth timber far above the transition to second growth. While logged land has more landslides than its unlogged counterpart, landslides that start in old growth tend to be larger and more destructive. That description fits the Starrigavan slide like a glove. There is a much smaller, equally recent slide on the opposite side of the valley, however, that started right at the transition between old growth and second growth forests.

2) Ash layers: Much of Southeast Alaska has been blanketed in ash in the last 12,000 years, but Starrigavan Valley missed the worst of it. Thick ash layers (more than 2 feet thick) are often persistent weak layers in the soil and excellent slip surfaces for debris avalanches to start. In this case however, ash was a minimal contributor.



What's going to happen now?

Wood use: With logs piled up like matchsticks along Starrigavan Creek, firewood understandably comes to mind. Unfortunately for wood stove users, all of that wood has fallen into a "riparian management area", or stream valley, that is governed by strict rules regarding wood removal. These riparian protections are in place to ensure that salmon streams receive an adequate supply of large logs to create small pools and shelters for young fish. While the Starrigavan slide may have delivered too much of a good thing to the creek, the Forest Service is bound by the riparian regulations that protect all of our streams. That means this wood can only be used for projects that improve the stream habitat.

ATV opportunities: It is a priority for the Forest Service to repair the ATV trails enough to maintain a closed loop. With recreation money drying up, improvements beyond that point may be impossible.

Future fishing: The Starrigavan slide destroyed most of the man-made salmon habitat along the creek, but the new pools and high habitat diversity created by the debris may offset that loss. We'll be carefully watching this year's salmon run.

Good news: The Starrigavan landslide has created an incredible natural classroom. Over the next few years, Sitka schoolchildren will get to observe how the forest heals after a disaster, from plant succession to the stabilization of a new stream channel.