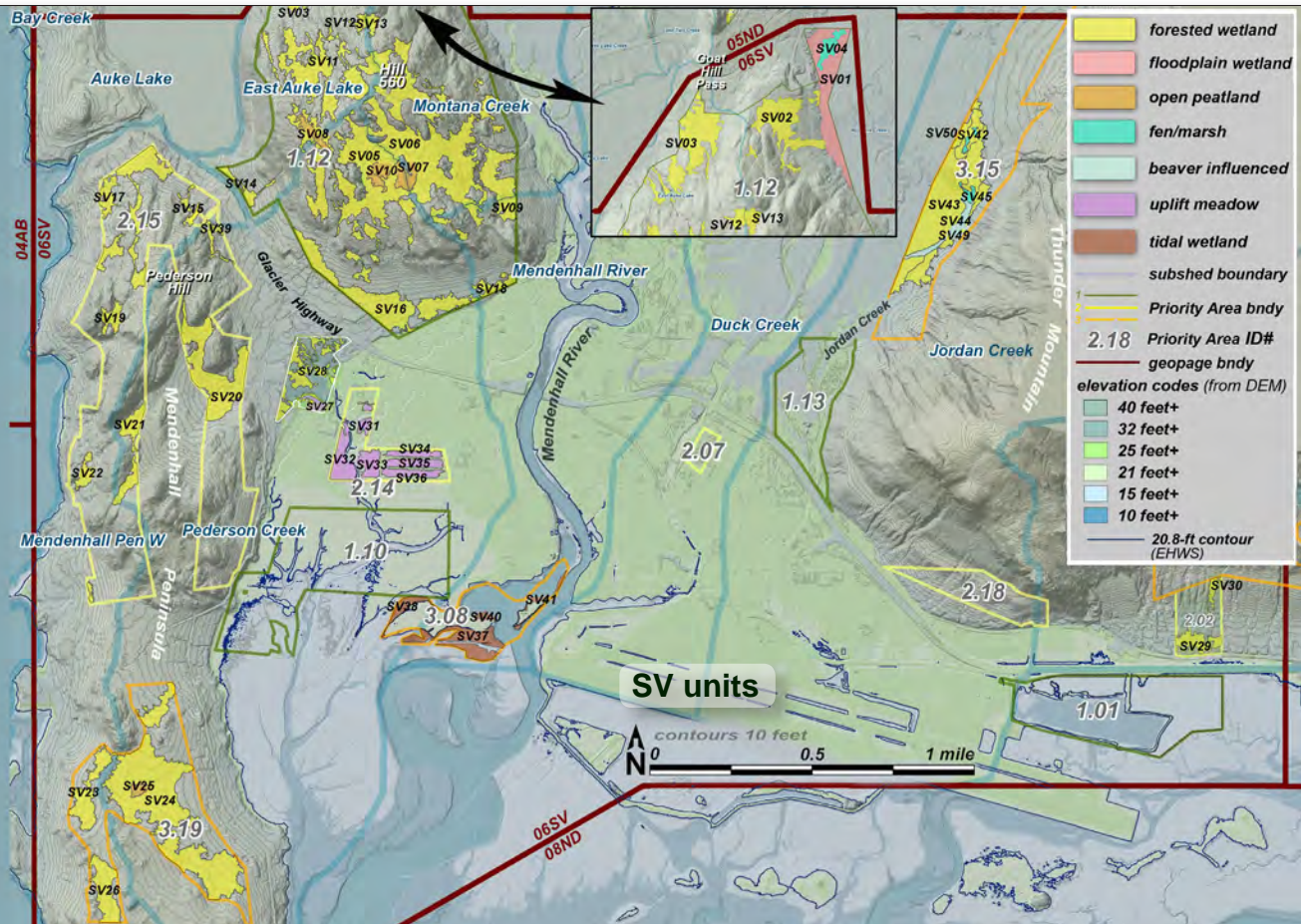


# 06SV South Valley

**Geography, subsheds, ownership** CBJ's 06SV map page is bounded on the east by Thunder Mountain, on the west by Mendenhall Peninsula, and on the northwest by "Hill 560". Page 06SV contains 12 Priority Areas totalling 1,510 acres. About 770 acres are on City land. The eastern half of PA 1.12 (Hill 560) belongs to the University of Alaska and another large parcel between Glacier Valley school and Thunder Mountain is State land. The rest

1 The hill between Auke Lake and Mendenhall Valley is often mistakenly called Pederson Hill. Technically, Pederson Hill is mapped by USGS as the northern summit of Mendenhall Peninsula, south of Glacier Highway. We refer to the hill north of the highway as "Hill 560."





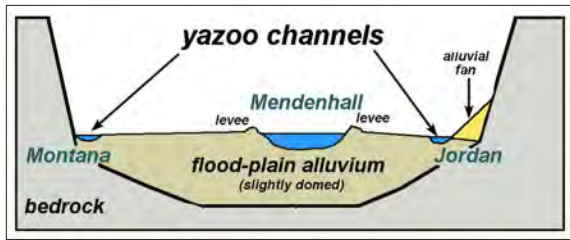
of the scattered Priority Areas on the South Valley map page are private, and most remained unsurveyed.<sup>2</sup>

We've divided the South Valley map page into 9 'subsheds,' shown with blue lines. Before the 2013 LiDAR acquisition this would have been impossible because topographic detail was too crude. Previously, only 2 prominent divides could have been effectively mapped: 1) One divide runs through Goat Hill Pass, over Hill 560, then swings southwestward over Pederson Hill, and down the crest of Mendenhall Peninsula. 2) The other major landscape divide follows the crest of Thunder Mountain, then descends seaward through the airport, where it becomes rather 'fuzzy,' defining the eastern limits of Jordan Creek subshed.

<sup>2</sup> An exception was PA 2.02 (fw units SV29 & 30), and another private parcel on the left side of the above aerial oblique that had not been a designated PA but was assessed on request from the owner (SV27 & 28). On completion of the field work, 4 additional PAs were assessed "off-site" on request from CBJ: #s 1.10, 1.13, 2.18, and 1.01. These are mapped and 'scored' in the JWMP final report, volume 2.

**Far left:** View NE across former sewage lagoons (um wetland units SV34-36) to the warehouse district on Jensine St & Industrial Blvd. PA 2.14 is an "L" of public land in the center of this patchwork of private parcels inhabited by descendants of early homesteaders Albert and Jensine Pederson. Pederson Creek snakes between our units SV32 and 33 onto the golf course, lower right. All of the lowlands in this scene including Brotherhood Park in center distance were tidal at peak of the Little Ice Age.

**Pair on right:** The century-old Homestead Entry Survey (HES) No 44—mapped in 1914 and accepted in 1919—accounts for the "L" shape of Priority Area 2.14. Here, the 1914 survey is overlaid upon the Navy's 1948 aerial (left), and CBJ's 2013 aerial (right), for examination of channel migration and expansion of dairy, military, residential and industrial activity onto uplifting tideland. Not shown on the HES 44 plat but executed by 1918 was Jensine's son William 's enveloping USS claim #2136 to the west and south, now home to historical truck collections.



Cross-valley profile. In the Little Ice Age, central glacial rivers deposited more sediment, such that surfaces *drop* slightly toward the valley walls, where yazoo streams like Montana and Jordan have been elbowed aside. Unlike Duck, they still receive groundwater from upland slopes, and remain excellent fish habitat.

By reference to the draft streams model and 2-foot contours, we delineated 4 subsheds radiating out from the complexly undulating summit of 'Hill 560.' Clockwise, starting on the northwest, these drain to Auke Lake, Montana Creek, Mendenhall River, and Pederson Creek,<sup>3</sup> which draws from the entire western slopes of Mendenhall Peninsula and the saddle with Hill-560. Meandering through heavily developed private parcels into the salt marsh, Pederson's entrenched, dendritic sloughs support surprisingly high densities of rearing salmonids, with a

<sup>3</sup> Here, too, there is inconsistency in naming conventions. The USFS streams database gives "Pederson Hill Creek/Casa Del Sol." Resident James Sydney is part of the original Pederson homestead family, and claims that "Pederson Creek" is a much older name than Casa Del Sol, which was named for a short-lived restaurant in the area. He reserves that latter name for a yazoo tributary to Pederson, which flows against the base of Mendenhall Peninsula and converges with the 'real' Pederson at the southern edge of the golf course.

total subshed area of 2.2 square miles.

Even with recourse to high-res LiDAR, our divides separating Mendenhall, Duck and Jordan subsheds are just rough approximations. Hyporheic (stream-associated groundwater) flow boundaries doubtless shift seasonally. The Mendenhall—Duck divide has probably moved eastward throughout the past century, because the larger Mendenhall channel is downcutting more rapidly than ditched and underfit<sup>4</sup> Duck Creek, thus 'capturing' ground water from the Duck subshed.

**Glacial history, geomorphology** Duck and Jordan Creeks originated as primary glacial outflow rivers during the Little Ice Age maximum. When fur farms were first established, about where today's Glacier Spur Road branches off from Mendenhall Loop, 10,000 chum salmon reportedly ran all the way to the headwaters of Duck Creek. Standing on Taku Boulevard today, watching the sluggish, irony flow, that can be hard to visualize. But even as recently as the 1929 Navy air surveys, vigorous glacial rivers flowed through intermorainal swales now known as Dredge and Crystal Lakes. Those flows directed enough hyporheic contribution through the washboard series of recessional moraines to charge Duck Creek with enough late-summer water for a respectable spawning congregation. Elevation at Taku Blvd culvert is 50 feet. Dredge Lake is 64 feet. Those 14 feet of head, over a run of 2,300 feet, provide a groundwater gradient of 0.6%

In contrast with Duck Creek—even after expensive rehabilitation efforts one of Alaska's most compromised streams—the Valley's 2 principle yazoo streams, Montana and Jordan (diagram, next page)—remain in healthy contact with large, forested headwaters. That's been important not only for hydrology and fish habitat but for wildlife connectivity.

**Ecology** Succession on uplifting tideland varies with substrate particle size. Finest silt and clay settled in Pederson subshed, along the sheltered western side of Mendenhall estuary. Surprisingly deep peat accumulated in sphagnum wetlands tucked against the base of Mendenhall Peninsula. Coarser sediments east of the river promoted waves of spruce forest, then high-density settlement.

<sup>4</sup> Streams that have lost flow over time but whose channel morphology reflects origins as larger, more vigorous rivers are referred to as "underfit" by hydrologists. For example, see narrative and photo for NV08.





**Culture** Once home to scattered L'eneidi fish camps on muddy, aggrading glacial distributaries, 06SV today hosts Juneau International Airport, and most of the Valley's commercial district.

View SW over lower Pederson Creek and Mendenhall Peninsula, where we mapped 11 forested wetland units within 2 horseshoe-shaped Priority Areas. The PA south of Engineer's Cutoff, #3.19, has less relief and a higher ratio of marine to till-on-bedrock surfaces—therefore a higher portion of this PA is wetland.