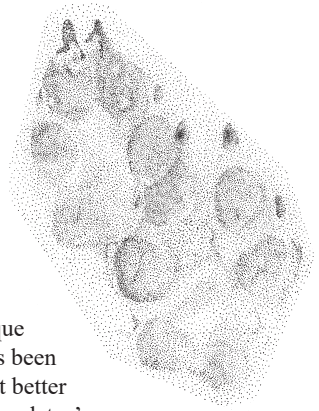
Discoveries

News & views from Discovery Southeast *Winter 1999*



Wolfshed: Hydrology of wildlife

Richard Carstensen

Like landforms, word meanings change. And like wearing down of mountains, erosion of word meanings usually happens too slowly to notice. The term "watershed" has slipped from convexity to concavity. Once signifying "*a ridge of high land dividing two areas that are drained by different river systems*," watershed in the age of asphalt more commonly means a drainage *basin,* as in "Gold Creek Watershed."

A basin perspective makes sense for such devoted lowlanders as Southeast Alaskans. Except for Eaglecrest and the new Mount Roberts Tram, humanity has limited permanent presence in the upper two thirds of any local watershed, a land we visit only for luxuries of gold or recreation.

For the past century, our lightly used highlands have been the salvation of wolves and wolverines. Large, far-ranging predators can no longer freely work the beaches from Thane to Bridget Cove. Throughout that long gauntlet connecting wilder moose-flats of Berner's Bay and Taku Inlet, wolves and wolverines are ridgerunners. Even on mid-winter wind crust, they trace the "watershed," in its antique meaning of high divide. Since that usage has been superceded by watershed-as-basin, we might better call our drainage borders ***the wolfshed***, the predator's highroad, strewn with bony scats of marathoners.

The Department of Fish and Game estimates overall wolf density in the Juneau-area mainland (Game Management Unit 1C) at about one per 75 square miles. A wolf needs about 26 deer per year, or an equivalent weight in moose or marmots. Obviously, a Gold Creek-sized-watershed (10.7 mi^2) is about enough, on an annual basis, to provide for one wolf's light breakfast. Add to that the wolf's impressive reproductive potential, which in 1993 resulted in frequent reports of a pack of about 16 running the ridges behind Juneau, and you start to appreciate why

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Banner: Wolf tracks. Front foot on right has been overstepped and 'smudged' by hind foot.
• **Left**: Wolf scat with marmot hair, claw and toe bone, on moss heather and worm lichen. Blackerby Ridge, 1989.

Welcome Jono

Scott Miller

Discovery is pleased to welcome to Juneau our new Executive Director, Jono McKinney and his wife Laurie. Jono brings a packful of outdoor education experience and a big smile to his new job. We think he will be a great asset to us and to the whole Juneau community.

Jono is a graduate of Yale University and recently completed a masters in Environmental Studies at Antioch New England Graduate School. He has been a teacher, expedition leader, program coordinator and manager of outdoor education programs for many years. Organizations he has worked with include the National Outdoor Leadership School in Lander, Wyoming, Yellowstone Ecosystem Studies in Bozeman, Montana, The Earth Bridge Project of Placitas, New Mexico and Fountain Valley School in Colorado Springs, Colorado.

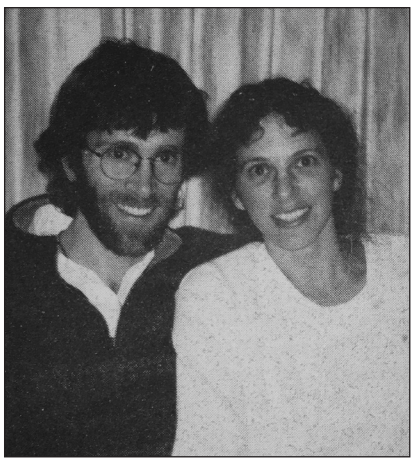
Jono is an experienced climber and was through Juneau several years ago on his way to an ascent of Mt. Logan. Laurie—who will be working as a nurse at Bartlett Hospital—has lived in Ketchikan. As a result, they share an important qualification for success here in Juneau; they know all about raingear.

Hello to friends & members

Jono McKinney

We made it! Neither rain, nor sleet, nor snow, nor -25 degree temperatures were going to keep us from finding our way from New Hampshire to Juneau. But all said and done, my wife, Laurie, and I felt incredibly lucky while sneaking our way around blizzards and ice-storms in the Northeast and finding mostly clear roads and good friends along our way, and the warmest of welcomes by board members, staff and new friends upon our arrival at Auke Bay.

Seems a long way back to that weekend in November when Laurie and I flew up to Juneau for an interview and look-see. Glorious weather highlighted the beauty of Southeast that weekend and we were excited by the enthusiasm for the Discovery Foundation demonstrated by staff, board members, and the people we met during our visit. Hikes with Richard Carstensen and Kristen Romanoff, conversations with the naturalists during a potluck, and candid discussions with board members revealed the Discovery Foundation to be a winner.



But most important in Laurie's and my decision to accept the offer for Executive Director and move up to Alaska was the strong sense of community we experienced within the Discovery Foundation, and within Juneau. I would like to thank all those who reached out to both of us to make us feel welcome within an exceptionally vibrant and motivated community. We are thrilled to be here.

The strength of community at the Discovery Foundation is among the organization's greatest assets. Harvard economist, Robert Putnam, recently described the indispensable role of "social capital" in building sustainable

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communities—whether big towns or small non-profit organizations. As executive director, among my goals will be to nurture the people and relationships which have sustained the development of the Discovery Foundation community. As an organization, we are a team of people with a common vision and purpose interlinked into the natural and social fabric of this region. Much as I was invited to join your community and to support the outstanding natural history education of Discovery Foundation naturalists, I invite you, as a stakeholder in this organization dedicated to "*helping Alaskans discover, explore, and cherish their natural home,*" to sustain, or renew, your involvement in this community, the Discovery Foundation. It is by nurturing this community, a web of relationships existing within the broader Southeast community, that we can extend the reach of natural history education for Alaskan children and adults.

Thanks for your invitation and warm welcome. I hope to meet you soon.

wolves must travel.

Trappers say wolves can trot from Berner's to Taku River in a day or two. Wolverines are nearly as mobile. But where among our hills are their primary corridors? I've found nobody who claims to know. Playing with the puzzle of the wolfshed, I spent hours on the phone with friends and acquaintances who venture afoot or in flight over Juneau's severely convoluted hinterlands, and who pay attention to things like scats.

I heard of the late Raven House elder Austin Hammond pointing to the hills and repeating 5 times to a skeptical journeyman trapper that to catch the wolverine, he must "*go wa-a-a-ay up in the mountains.*" I heard of wolves crossing Mendenhall Glacier above the first icefall, cornering goats on cliffs near Suicide, chasing pet dogs at Nugget Creek, and even speculation that the improbable 1993 megapack of 16 included feral dogs. I talked to sharp-eyed pilots who'd followed wolf tracks in fresh snow down the ridge from Sheep Creek headwall to Point Bishop, and another set threading the knife edges for miles above Gilkey Glacier, sidehilling only around the meanest spires.

I was left with great respect for the collective astuteness of Juneau's amateur and professional observers. Yet trying to assemble a composite picture of wolf movements, pack dynamics and

Black wolf on neoglacial lateral moraine of Ptarmigan Glacier. Nugget Mtn, Thomas and Lemon Creek Glaciers to the north.

Fieldnotes **19930608**: Chopper with alpine class to 3,500 feet on upper Blackerby Ridge. High overcast.

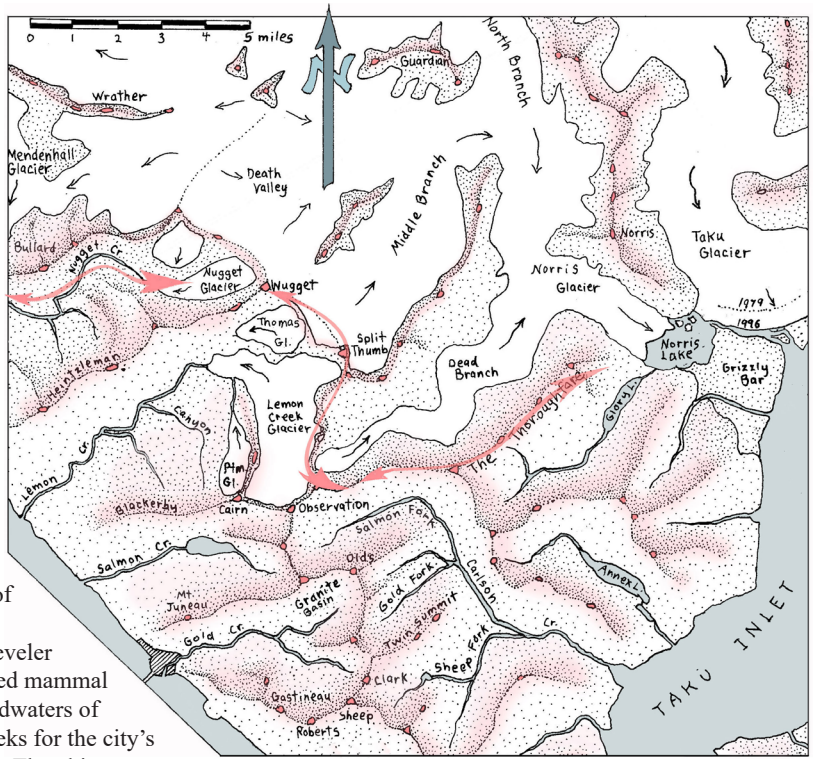
Canyon Fork of Lemon Creek heads in a vast, treeless expanse that looks more like the arctic than the Tongass. To admire it, 15 of us gathered at a cliff top. Only 100 yards below, in alternating stringers of snow and bare heather, a pair of dark wolves were hunting marmots. One may have been the solo we saw last week with the natural history class, 2.5 miles north at the foot of Ptarmigan Glacier (drawing, previous page). If they have pups they must be foraging round the clock for small game, because the few goats here are by now surely wise to them.

A marmot shrieked and dove into its burrow in the rocky heath as one wolf trotted across a snow patch. The wolf quietly moved to an ambush post about 10 yards from the hole and lay down to wait with head on paws, just out of sight. The trailing partner remained in hiding in another heath island, about 30 yards across snow from the burrow. It looked like checkmate, but lacking the patience of marmots or wolves, we moved on before the outcome, awed by our fortune.

prey consumption from these snapshots, however fascinating, resembles the story of the blind men and the elephant. To say anything definitive would require an expensive radio telemetry study, and scat analysis from all kinds of terrain, not just ridgetops or valley bottoms. This has only been done on Tàan, *sea lion* (Prince of Wales Island), by Dave Person and colleagues.

Tàan lacks Juneau's prey diversity, but has more prey biomass. There, wolves focus more exclusively on deer. Genetic isolation, logging, and the maze of roads pose challenges to wolves on that southern island. The CBJ, in contrast, has fewer roads, less deer, and more moose, goat, beaver, porcupine, marmot, hare, grouse, and ptarmigan. How does diet change seasonally and annually? How do home ranges of Juneau's packs compare to those of better-studied Prince of Wales?

In 1993, Greg Streveler and Judy Brakel studied mammal populations in the headwaters of Gold and Salmon Creeks for the city's Water Utility Division. The object was assessing giardia potential in collection basins of our drinking water. For those mammals whose appetites demand multiple watersheds—wolf, wolverine, black and occasionally brown bear—Greg and Judy



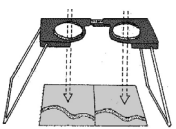
Juneau/Taku watershed map. Ridges accentuated to show drainage borders. Black arrows show ice movement; pink arrows posit the 'wolfshed I-90.'

identified Carlson Creek drainage as a likely route to the lowlands of Taku Inlet. A 2,900-foot pass connects Carlson to Glory Lake Valley, perhaps a conduit for wolves commuting to Grizzly Bar. Just to the north, a serrated but continuous ridge leads northeast from Observation Peak to Thoroughfare Mountain. Thoroughfare for whom, or what?! [1]

The area most frequently named in local wolf stories is Nugget Creek Valley. A den was found at the base of Mount Bullard, and trappers believe the valley is a common approach route from Nugget Mountain highlands to Mendenhall lowlands, crux of the Taku-to-Berners commute.

1 Orth's 1967 *Dictionary of Alaska place names* says only "*local name reported by DA. Brew and AB. Ford, USGS, in 1965.*"

A stereogram is a pair of photographs of the same scene from different positions. To view in 3D, look through a stereoscope set over the photos so that the two images merge and 'pop up.' *What? You don't have a stereoscope?!* You can order one from school or forestry supply catalogues. Meanwhile, try 'free-viewing.' It's no harder than seeing the patterns in 3D Magic books. Hold the page a foot away. Looking over the top, focus your eyes on a far wall. Then drift them down onto the photos, and try to make the double images converge. Do this when your eyes are relaxed . . . No luck? Try again tomorrow morning!



Confluence of Taku and Norris glaciers in 1948. Over the next 62 years, Taku advanced and Norris receded. Left image overlaid with 2010 ice limit and inlet-pinching sandbar of till-cored outwash.

Fieldnotes **19990203**: Mount Roberts Tram, 1,750 feet. Continued but lessening snowfall adding ~8 inches of fluff onto firm wind crust.

On a rocky knoll behind the upper tram landing, Kathy Hocker and I found a well-used porcupine tree, with littered niptwigs of tight-needled spruce, and urine stains in the waddling track. A wolverine had also checked out this sign, probably sometime yesterday. Its leaping, mostly 1-2-1X gait pattern through meadow openings was filled-in and featureless, but under the elfinwood, where it down-shifted to a walk, we saw protruding asymetrical claw marks. Aside from porky, we found only squirrel tracks, ptarmigan droppings, and willow-browsings of long-departed deer. Pretty slim pickings for old *Gulo*. Did food or plain cussedness draw this intensely intolerant creature to the busiest highcountry acre in all of Southeast Alaska? What barbarous ideas burn in the muscle-bound cranium of a wolverine?

Nugget Valley squeezes wolves against people.

The rest of their route is wilder, yet accessible to the wealthy. Our stormy icefield and its enveloping labyrinth may be the most extreme backyard of any city on the continent, but only a 10-minute jaunt in a helicopter. Its managing agency, USFS, Juneau Ranger District, is presently analysing permits for commercial icefield activities in the coming years 2000 to 2004. Past landings were limited to 19,039 per year. New proposals include dogsled tours, heli-hiking, and landings in the lake at Antler Glacier.

As Juneau grows, the country strains to accomodate us. Community planning can ease that strain, and in the lowlands, encouraging efforts have begun. Mendenhall Watershed Partnership is a citizen's group linked by common concern for the basin of Mendenhall River and its tributaries. Within a 114-square-mile drainage cresting at 6,910 feet, the Partnership works mostly below the 100-foot contour. Its structure and deportment are modeled on older such collaborations in the southern 48, and few of those have dealt with highlands full of icefields and wandering wolves.

Coalitions like Mendenhall Partnership have sprouted all over North America, where burgeoning populations jostle against nature's long-overlooked zoning laws. In less precipitous terrain than Southeast Alaska's, borders of watersheds may look scarcely different from streamside, and often are as heavily developed. Driving through upstate New York this September, I was puzzled by a sign marking the "*Genessee Watershed Divide*," erected by the local watershed association. To Tongass eyes it looked pretty flat—cows and corn, and not a wolverine in sight.

Back home, a divide is a divide. Only in Juneau's paved-over Duck Creek Watershed do you need a hydrology degree to delineate a watershed divide. Elsewhere, just get out your contour maps and an erasable pencil, as we do in Discovery classes. Connect the peaks and saddles. Ferret out with your stereoscope the subtler plunging buttresses that lead the divide to salt water. What you're drawing has biologic as well as hydrologic significance. This is landscape ecology. Tracing a watershed—in her oldest meaning of topographic prominence, you're mapping cornice plumes, marmot colonies, wolf trails.

The map needs a lot of work, and more foresight than we've so far exercised. An economy founded on remote play is filling in the wild spaces.

Mendenhall Watershed Partnership

In January 1998, a diverse group of home and business owners, builders, scientists, and educators began working together to steward a healthy Mendenhall Watershed, able to support a vital community and vigorous local economy. The Mendenhall Watershed Partnership is an expansion of the Duck Creek Advisory Group, with which Discovery Foundation has been involved through Water Watch. The Partnership encompasses a wide range of opinions about development and the environment. But we all share a desire to improve water quality and streamside habitats.

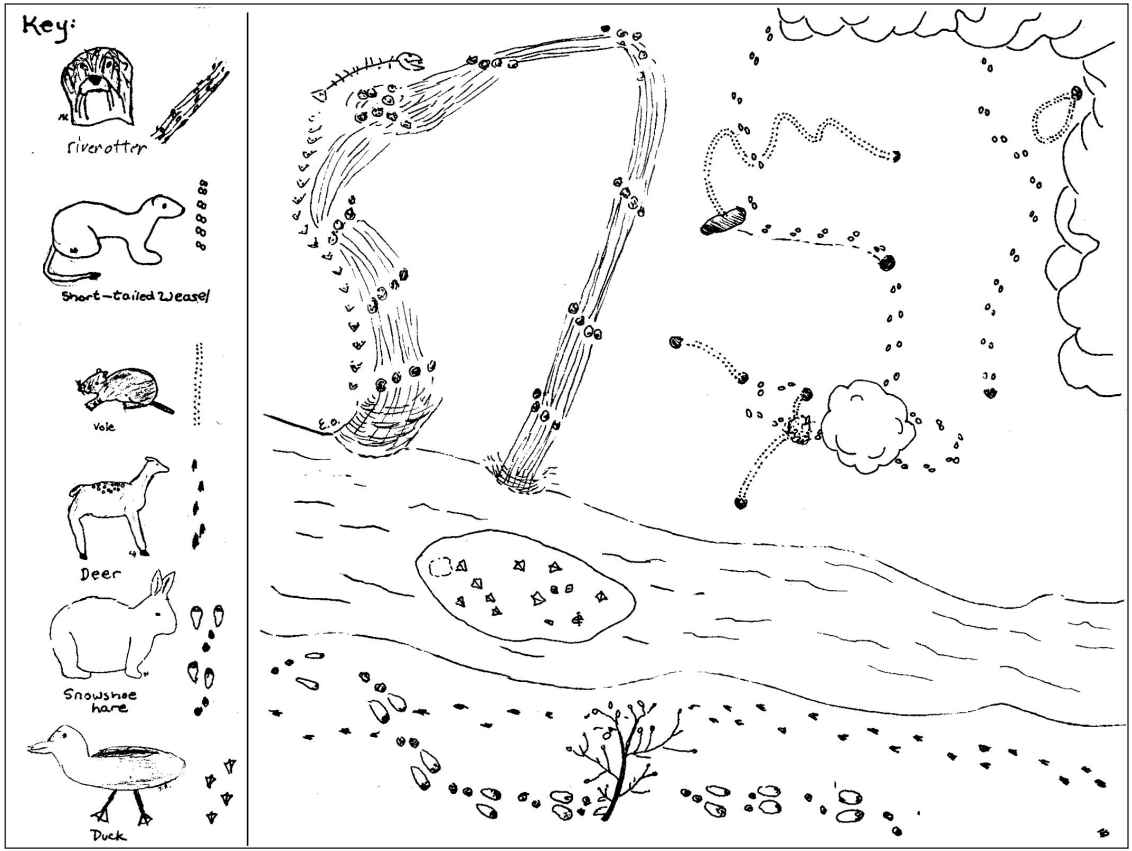
The Mendenhall Watershed Partnership hosts workshops and community events, some assisted by Discovery naturalists. It works with City, State, and private interests, and supports restoration projects.

Snow stories

Kathy Hocker

These snow stories were created by Ms. Heagy's class at the Juneau Charter School. Artists were: Anna, Beth, Brick, Elias, Elliott, Erika, Isaac, Jason, Karen, Lauren, Matt, Sofia, Weldon.

Try writing what you think has happened, and then compare to the students' answers.



Answers: Otter climbed out of the creek dragging a fish, paused and munched for a while, then bounded and slid back into the water.

Weasel emerged from a hole, bounded into the bushes, then out again. Vole came out of a hole in the snow and zigzagged across the surface, only to be pounced upon by Weasel and dragged into another hole in the snow surface. A while later, Weasel left this hole and bounded under a snow-covered bush, pouncing out at (and missing) another vole. (Is Weasel still under the bush?)

Duck wandered and rested on a snow-covered rock in the stream.

Hare and Deer crossed paths along the streambank. Both nibbled the tasty willow buds poking out of the snow.