

# THE WILD CASCADES

THE JOURNAL OF THE NORTH CASCADES CONSERVATION COUNCIL

FALL 2023



## THE WILD CASCADES ■ Fall 2023

- [3 President's report — Phil Fenner](#)
- [4 N3C Actions: July to October 2023](#)
- [6 Goldworthy map lives on](#)  
[Thanks from Samantha Richert](#)
- [7 Groundtruth: Post fire logging in the Suiattle Valley — Jim Scarborough](#)
- [8 John Miles and \*Teaching in the Rain\* — Ken Wilcox](#)
- [10 The tale behind the term \*ancient forests\* — Brock Evans](#)
- [11 Skagit River Project Relicensing: extended negotiations — David Fluharty](#)
- [12 Book Review — \*This Land: How Cowboys, Capitalism, and Corruption are Ruining the American West\* by Christopher Ketcham — Reviewed by David Fluharty](#)
- [13 Book Review — \*Natural Rivals: John Muir, Gifford Pinchot, and the Creation of America's Public Lands\* by John Clayton — Reviewed by David Fluharty](#)
- [14 Close roads to lessen wildfires — George Wuerthner](#)  
[Chelan County starts "visioning" process for Stehekin](#)
- [15 N3C fire education meeting a big success](#)
- [16 N3C reveals plan for a fire-safe and ecologically sound community — Rick Bailey](#)
- [18 North Cascade Glacier Project 2023: Lower Curtis Glacier, Mount Shuksan — Tom Hammond](#)
- [23 N3C membership application](#)

COVER: In this watercolor compilation of mountains and glaciers in the North Cascades, the top surface of the mountain glacier is a line graph that depicts the mass balance of North Cascade glaciers from 1984-2022. Mass balance is the health of a glacier: the difference in snowfall gain vs. melt each year. During the 40 years of the North Cascade Glacier Climate Project (see page 18), my dad Mauri Pelto and team have hiked over 5,000 miles, taken over 40,000 measurements, and spent over 700 nights in tents. —JILL PELTO PAINTING

### The Wild Cascades

*Journal of the North Cascades Conservation Council*

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THE NORTH CASCADES CONSERVATION COUNCIL was formed in 1957 "To protect and preserve the North Cascades' scenic, scientific, recreational, educational, wildlife, and wilderness values." Continuing this mission, N3C keeps government officials, environmental organizations, and the general public informed about issues affecting the Greater North Cascades Ecosystem. Action is pursued through administrative, legal, and public participation channels to protect the lands, waters, plants and wildlife.

Over the last six decades N3C has led or participated in campaigns to create the North Cascades National Park Complex, Glacier Peak Wilderness, and other units of the National Wilderness System from the William O. Douglas Wilderness north to the Alpine Lakes Wilderness, the Henry M. Jackson Wilderness, the Chelan-Sawtooth Wilderness, the Wild Sky Wilderness and others. Among its most dramatic victories has been working with British Columbia allies to block the raising of Ross Dam, which would have drowned Big Beaver Valley.

N3C is supported by member dues and private donations. These contributions support the full range of the Council's activities, including publication of *The Wild Cascades*. As a 501(c)(3) organization, all contributions are fully tax deductible to the extent allowed by law. Membership dues for one year are: \$10 (Living Lightly) to \$100.

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Founded in 1957  
SEATTLE, WASHINGTON

## THE PRESIDENT'S REPORT

FALL 2023

What motivates a N3C member to stand up and speak for our wild lands in the North Cascades? Folks ask me that when I'm recruiting them to join. Is it just to keep it wild so we can have challenging outdoor recreational experiences, or is there more going on? I try to relate the epiphany I had when I first took my own kids, and now when I take my grandkids into wild places, and of a theme I read again and again in the writings of our founders, that "we are saving it for future generations," not just for ourselves. That sure feels right to me! What if our founders hadn't gone out of their way to save what we have inherited? Where would we be today? Standing among stumps. Harvey Manning wrote a dystopic version of that in our book *Wilderness Alps* and it's enough to make you wish he and his cohort were here today to thank in person. Now, though, I realize it's our turn to save more places for our future generations. The goal remains, but the game has changed dramatically. You'll read in this issue how remaining unprotected forests are in the crosshairs of industry now like never before, despite their new long-term importance for future generations—taking up CO2 and thus mitigating climate change.

I'm happy to report that our outreach has been very fruitful of late. Not only have we had a number of new members jump aboard, and a number of gift memberships given by you our members, but we've been very fortunate to hear from some members who are recently retired from the Forest Service and have deep, detailed knowledge of the situation within the agency in our region. They are scientists, fisheries experts and hydrologists who have seen their cohort of science staff decimated in recent years and actions taken to quell their voices. For those of us who lived through the latter half of the Cold War, it's reminiscent of "defectors," who bring with them intimate knowledge of what's going on behind the proverbial curtain which is otherwise kept quite obscure. This perspective will be essential as we move forward to challenge the so-called "restoration" projects in the Twisp and North Fork Stillaguamish watersheds. You can read more in this issue about our counterproposal for ecologically sound community solutions supported by science.

Those of us lucky enough to live within an easy couple of hours drive of the wild public lands in the North Cascades are so fortunate to be able to enjoy them frequently. The question is how to motivate the public to do more than enjoy—to get involved and help protect what they love. If all the hikers who parked in the 3-mile-long line of cars along Hwy 20 at Rainy Pass a few weeks ago at the peak of "larch madness" were N3C members, I know we'd move forward faster with new protections. I always try to chat with fellow hikers I meet on trails and mention joining N3C as the best way they can take action to save more places, and I urge you to do the same. Why N3C? Because while some other organizations have steered their conservation programs away from advocacy, defense of science and law, N3C is dedicated to exactly those principles, to ensure quality recreational experiences and to safeguard diminishing biodiversity and ecological integrity for future generations.

Phil Fenner

[philf@northcascades.org](mailto:philf@northcascades.org)





# N3C Actions

JULY to  
OCTOBER 2023

*Advocacy carried out by  
dedicated N3C volunteers  
in the last four months to  
protect and preserve the  
North Cascades lands,  
waters, plants and wildlife.*



## DEFENDING WILD AREAS AGAINST DAMAGING INDUSTRIAL USES

**Why it matters:** resource extraction — mining, logging, hydropower — is the most harmful use of public land. N3C strives to save what remains wild, mitigate what's been lost, and restore what's been damaged.

☒ Signed onto Washington Wild's letter to the Washington State Department of Ecology supporting DOE's proposal to designate the Cascade, Green and Napeequa Rivers as Outstanding Resource Waters with Tier III (A) protections, the highest level, requiring actions that require permits near the rivers to demonstrate they would not lower the water quality.

☒ Continued engagement with the NPCA National Parks Conservation Association, re: the Skagit Hydro project relicensing process, the proposed road to Ross Reservoir, and project mitigations. N3C has a seat at the table. (See page 11)



## ESTABLISHING, EXPANDING AND PROTECTING WILDERNESS AREAS

**Why it matters:** federal land designation as Wilderness and Park is the gold standard of ecosystem protection, precluding most damaging industrial and commercial exploitation.

☒ Asked DNR to remove a helicopter that crashed in the Copper Lake area near Morningstar Natural Resource Conservation Area and fine the operator. It remains to be seen if DNR will take these steps.

### Want to take actions that protect the North Cascades?

Join the N3C board.

Contact Phil Fenner for details at  
[philf@northcascades.org](mailto:philf@northcascades.org)



## PROTECTING ANCIENT FORESTS AND PROMOTING RESPONSIBLE FOREST MANAGEMENT

**Why it matters:** *like real estate, they're just not making ancient forest anymore. We seek to restore watersheds and fisheries damaged from decades of heavy logging and road building and protect significant forests from degradation.*

- ✓ Our attorneys submitted a summary judgement motion challenging the Twisp logging project, and on 9/15 our reply brief to defendant Forest Service's cross-motion for summary judgement.
- ✓ Held well-attended public meeting in Twisp to share N3C's alternative to the Twisp logging project. (see page 15)
- ✓ Met with members of the Advisory Committee appointed by the Forest Service to revise the Northwest Forest Plan, urging them to retain protection for Late-Successional Reserves.
- ✓ Signed onto letter with Wild Earth Guardians to USFS Deputy Chief Chris French urging him to improve how Legacy Roads & Trails (LRT) projects are ranked and selected and ensuring greater transparency and public input/accountability
- ✓ Met with ex-USFS scientist to discuss the potential case for a lawsuit to stop the N Fork Stillaguamish logging project.



## PROMOTING ENVIRONMENTALLY SOUND RECREATION IN WILD AREAS

**Why it matters:** *balancing access with economics and Wilderness preservation, we evaluate motorized use and places where it needs to be limited to reduce land impacts and recurring road repair costs.*

- ✓ Met with Chelan County's Director of Natural Resources to discuss their new Stehekin economic development planning project. Emphasized the need to limit growth in the area. (See page 14)



## PROTECTING WILDLIFE AND WILDLIFE HABITAT

**Why it matters:** *From microscopic fungi to top predators, the wilderness ecosystem's living members are interdependent, so keeping viable populations of each species is essential to preserve the ecosystem for future generations.*

- ✓ Rejoined "Save Our Wild Salmon," which works to restore native salmon runs throughout the Pacific Northwest
- ✓ Signed onto letter with Endangered Species Coalition and EarthJustice urging the Biden administration to fully restore the Endangered Species Act as it approaches its 50<sup>th</sup> anniversary.



## New N3C website!



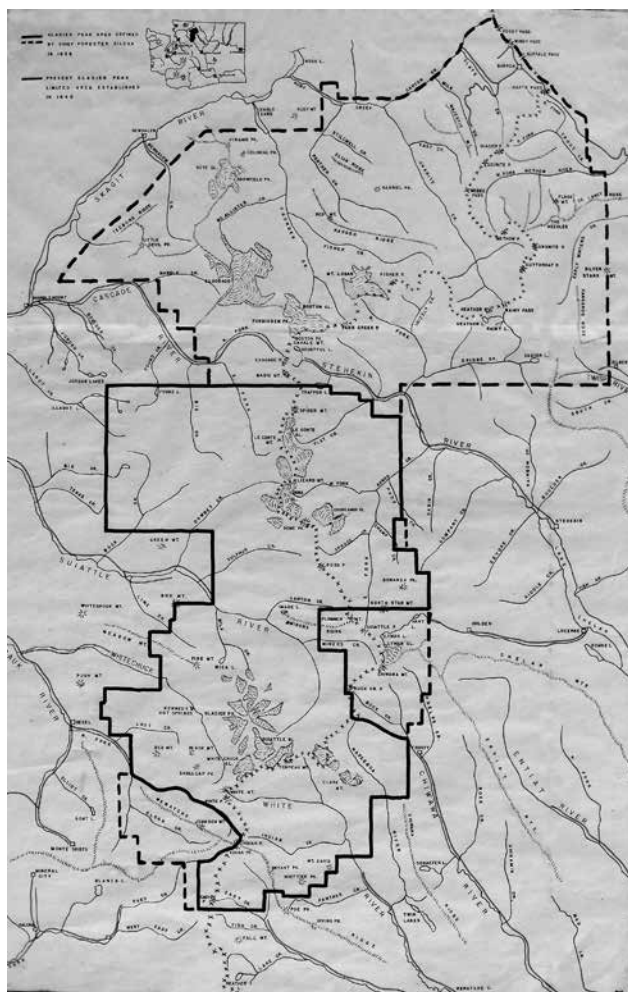
Home

Special Feature: The Methow Community Alternative

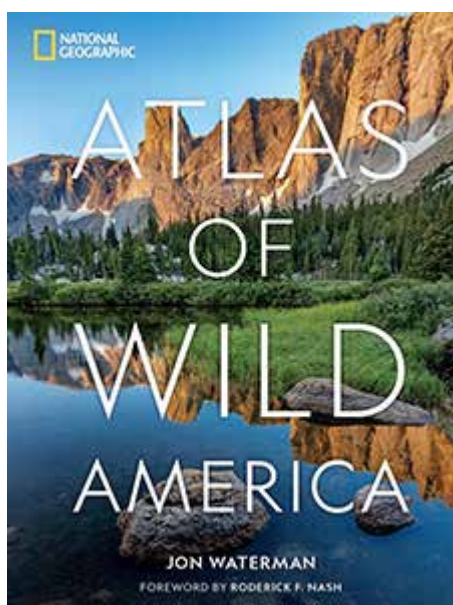


We've completely redesigned our website for easier access and a more appealing design. Take a look on your big or little screen, it's mobile-friendly! We value your feedback—email us at [ncccinfo@northcascades.org](mailto:ncccinfo@northcascades.org)!

# Goldsworthy map lives on



Patrick Goldsworthy drew a map of Glacier Peak Wilderness about the time he founded our organization in 1957. That map made it clear that the only protected area in the North Cascades shrank almost by half when a new Chief of the Forest Service was appointed in 1940 (from the dashed line down to the solid line). How could protection be restored permanently? With a new National Park! Patrick's map is featured in the new National Geographic *Atlas of Wild America* by Jonathan Waterman, through a license agreement with National Geographic books. Buy a copy at <https://tinyurl.com/ytbff8cc>.



## Thanks from Samantha Richert

Samantha Richert, Museum Curator for North Cascades NPS Complex, was tickled to receive the Summer *Wild Cascades* featuring photos from the 1963 NPS North Cascades Survey. Those photos are part of the NPS Complex Museum Collection of the NP Gallery, <https://npgallery.nps.gov/NOCA/NOCAHistorical>, which includes photos, illustrations, audio files, videos, and documents relating to National

Parks. N3C had helped identify people and places featured. Ms. Richert writes:

*I appreciate all the good information and perspectives as well as seeing the photos put to good use. I see in one of the callouts that NC3 has been giving input to WNPF on how they spend the funds allotted to North Cascades. So I want to let you know that the digiti-*

*zation of the 1963 NPS Survey collection was funded by WNPF. They are also funding an intern for this year who will be digitizing Bob Wasem's photos of high mountain lakes and other watersheds.*



# Groundtruth: *Postfire logging in the Suiattle Valley*

By Jim Scarborough



*A sad look at what the Forest Service considers “Wild & Scenic” on the Suiattle River. The stump in the foreground was until recently a 320-year-old Douglas-fir. —JIM SCARBOROUGH PHOTO*

In October, I steered a course up the Suiattle River valley to an area of “salvage” logging inflicted by the U.S. Forest Service between the tributaries of Downey and Sulphur creeks. This zone burned naturally in 2020, while the salvage operation in the midst of a Wild & Scenic River corridor (a fact which was omitted by former Darlington District Ranger Greta Smith) wrapped up around this time last year. This misbegotten operation – one of a long line of Forest Service messes over the past five years – is sandwiched between the Suiattle 26 road and both designated Wilderness and Inventoried Roadless Area boundaries upslope.

On the drive up through the more recent (2022) Suiattle burn farther downvalley, which grazed the Buck

Creek campground, I again observed how western red cedar so often fares most poorly when licked by flames, in comparison to nearly all other regional tree species. The Bolt Creek fire along Highway 2 is a prime example of this. Bigleaf maples there are already vigorously regenerating, while all but the largest red cedars are dead.

So it came as no great surprise that the Downey-to-Sulphur salvage operation largely specialized in the removal of scorched red cedars between two and three feet diameter. The loggers also took a generous number of smaller Douglas-firs between one and two feet, along with a smattering of hemlocks. I noted a single maple that they made away with as well.

Unfortunately, I counted one new cedar stump at five feet diameter,

along with a half dozen Douglas-firs of similar girth. All but one of these larger trees were ripped out at the Downey trailhead, which is no longer the bucolic place it was. I conservatively counted 320 rings on one of these Douglas-fir stumps, which seems about right in that it dates from the megafire at the dawn of the 18th century.

This salvage operation was concentrated in five or six patches which for all the world look like old-fashioned shelterwood cuts. Remarkably ugly they are (Wild and *Scenic*!), alleviated only by a new carpet of tree sprouts (Douglas-fir, red cedar, grand fir, hemlock) and a shrub layer (Oregon grape is going to be just fine). The ground through here clearly didn’t burn that hot.

One might assume the faux shelterwood cuts were focused in spots where tree mortality was greatest. Not so. Although one can gaze up the slope to where the fire crowned (it is in fact a nice, healthy mosaic up there), it did not crown along the roadway. I noted this also in pre-salvage satellite photos. The loggers just concentrated on spots that were convenient toward getting the volume they sought, taking still-living trees while they were at it.

The rest of the Downey-to-Sulphur stretch underwent a light touch or none at all. If any of this operation reduced “hazards” to the road and its visitors, it’s hard to see exactly where. I was fortunate enough to watch one decent-sized snag fall above the Suiattle trailhead, no wind to speak of, about a hundred feet upslope. I am certain it would have made a sound even if I hadn’t been there to witness it.

# John Miles and *Teaching in the Rain*

By Ken Wilcox

Park and wilderness educator and historian John Miles received a warm welcome back to Bellingham on October 3rd, for the launch of his latest book, *Teaching in the Rain*. The book provides a detailed history of the North Cascades Institute, founded by a small clutch of wilderness geeks looking to “save the world” almost four decades ago. The event took place in front of a packed audience at Village Books in Fairhaven on Bellingham’s southside.

Originally from New Hampshire, Miles came to Bellingham in 1970, by way of Eugene, Oregon, where he did his post-grad work, which he was pretty sure would have something to do with the outdoors, wild places in particular. Frolicking in nature with his brother had given him considerable joy growing up in New England.

He supercharged those instincts in Oregon, adding mountaineering and paddling to his outdoor repertoire. Why not make a career out of it? He soon discovered there was a field of study and work actually called “environmental education.” That would be the ticket.

Western Washington University’s brand new Huxley College of the Environment is what brought Miles to Bellingham by 1970. That was the first year of classes at the groundbreaking school, and of course, the year of the first Earth Day. Still an upstart in the field, Miles was tasked to lead the development of an environmental education program of study at Huxley. (He also co-founded the Outdoor Center at Western, putting 40,000 miles on his VW bus leading trips thither and yon.)

I should probably note that the college, named for Aldus Huxley’s cousin T.H., aka Charles Darwin’s “bulldog,” recently deleted the Huxley name from its identity. It turns out that, despite some good science connecting birds to dinosaurs and the like, T.H. was quite a racist and argued



Same as it ever was.... John Miles and Saul Weiserg celebrate the release of his new book — “*Teaching in the Rain: The Story of North Cascades Institute*” — at Village Books in Bellingham.

that white men were superior to other races as well as women in general.

As this darker stuff came to light, questions were asked and a detailed review ensued. It was decided in 2021 that in more enlightened times, the school no longer wanted anything to do with that legacy. The institution is now called simply the College of the Environment. As a Huxley grad myself, I’m good with that. And I’m likely a better human for being a student in a couple of Miles’ courses way back when.

So, as a new leader in environmental education, John Miles went on to explore and expand academically the notion of “experiential education” in nature, i.e., teaching and learning about the outdoors—in the outdoors, as opposed to a stuffy classroom, at least when it’s practical. When the North Cascades Institute (NCI) was formed, it offered an ideal means of doing just that. Of “teaching in the rain,” so to speak.

In his book, Miles describes a call he received one day in 1986 from John Reynolds, the superintendent



of North Cascades National Park. He wanted John to attend an organizational meeting with NCI founders Saul Weisberg and Tom Fleischner. They and others had been attracted to the idea of a field school that could help make the natural and cultural history of the North Cascades more accessible to a broader public.

Having already hiked and climbed all over the North Cascades, Miles went to the meeting as a gleeful observer. He went back home as chairman of the board. It was a big idea with some pretty exciting potential. Recall that the 1980s were not easy times to be an inspired conservationist. Reagan was in the White House and James Watt was his anti-environmental public lands extremist—to put it lightly—Secretary of Interior. The NCI crew, however, wasn't fazed.

In *Teaching in the Rain*, Miles takes the story from there to its fabulous success over the next four decades. At Village Books, he set the tone by reading a few statistics from the book. In 2020, the institute, including the North Cascades Environmental Learning Center, had 65 staff and a \$4 million budget. And it had brought in, since its founding, over \$55 million in non-federal funds to support education in the North Cascades, benefitting 157,000 students. That, he said, is an impact. And an outstanding model, he added, for what we desperately need more of in the world.

The N3C connection to NCI and to the learning center in particular, can't be understated. In the first few pages, Miles gives due credit to the N3C for the establishment of North Cascades National Park Complex and adjoining wilderness areas. Better yet, he goes into much detail in chapter four regarding the relicensing of Seattle City Light's Skagit Hydro Project and the work of Dave Fluharty and others at N3C that led directly to the creation of the learning center at Diablo Lake.

It's an excellent story, well told, and of special interest to N3C members. It began in the fall of 1989 with a visit to Fluharty's office in Seattle by Saul Weisberg and Jon Jarvis, the resources chief at North Cascades National Park. (Jarvis went on to become a regional

director for the National Park Service, before being appointed by President Obama in 2009 to lead the entire agency.)

With Fluharty's support, the N3C was all in, "a strong advocate" helping to build support for the idea, while also becoming a key force in the licensing process. Sixteen long years later, in 2005, the learning center opened for business.

Rather than sum up the events and complexities here, I'll leave it to readers of *Teaching in the Rain* to settle into a comfy space and read it for themselves. But

realize, as John reminded us at the talk in Fairhaven, that environmental education as mitigation for the adverse effects of a hydro-power project, or any major development project for that matter, was

virtually unheard of back then. And persuading a monolithic agency like the Federal Energy Regulatory Commission to mandate such a novel thing in its license was truly groundbreaking.

I'm sure Fluharty and others would love to add a few hundred footnotes to fill in the details, but this is a story about the NCI, and Miles does a great job keeping his focus on the prize. I'll look forward to Fluharty's take on Miles' telling of the story. Regardless, there is no doubt we can be proud as an organization in having a hand in creating a lasting legacy at NCI.

Miles even gives Seattle City Light a bit of credit. "The unprecedented nature of the idea," he writes, "could have been used as an excuse by City Light negotiators to block it. They might have argued that it was outside their charge as a public utility to be engaged in environmental education, but they didn't."

Miles sums up some of the NCI programs that were developed over the years, especially Mountain School, a camp-based program that's touched the lives of thousands of kids. He also

more broadly champions NCI's role in a difficult world:

"The need for the work of the Institute has never been greater, whether that need derives from social unrest and divisiveness, dysfunctional modern lifestyles, environmental degradation, or the existential threats of biodiversity loss and climate change. The Institute's stated goals of ecosystem and climate literacy, community, diversity, belonging, and civic participation and stewardship are appropriate and necessary responses to the crises of the 21st century in the Pacific Northwest and beyond."

During the Q & A session after the talk, someone asked Miles what he envisioned for the future of environmental education. Somewhat surprisingly, he said he was not only optimistic about

the future of environmental ed, he expects the public's interest will grow "in a fury."

He shared an insight from his late colleague David Clarke, who had explained how catastrophes can move people to do the right thing, offering an example from London and its bombing by the Germans in 1940. Extreme weather events, said Miles, are having that effect now. People are recognizing that nature matters.

Miles served as dean of the college from 1985 to 1992. He retired from "Huxley" in 2014, and now lives with his wife Susan near Taos, NM, still exploring, still writing. He is the author and editor of *Impressions of the North Cascades*, available on N3C's website as a free e-Book under the 'Publications' menu, and at this link: <https://tinyurl.com/38w87ca9>

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*Persuading a  
monolithic agency like  
FERC to mandate  
environmental education  
in its license was truly  
groundbreaking.*

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# The tale behind the term *ancient forests*

By Brock Evans



*Ancient western red cedar forest near lower Noisy Creek, still waiting for an enlarged Noisy-Diobsud Wilderness boundary to give these monarchs the protection they so clearly deserve. —JIM SCARBOROUGH PHOTO*

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**O**n the topic of wild forests, I have always felt so happy when people use the word *ancient* to describe these 'Irreplaceables.' Did I ever tell the story about how that word came to be a part of our everyday usage?

It all began just after a major forest protection conference a bunch of us put together, 1988, in Portland. About 800 people showed up... this was before the Forest Service even thought of the Northwest Forest Plan's rules and regulations.

And likely, it was the passion and enthusiasm of the conference attend-

ees—from all over Washington and Oregon mostly—which caused the new 'Plan' *to even happen at all*, in my view. That conference, plus others in those times, got lots of attention.

'OLD GROWTH', a forester's term, was the descriptive phrase most commonly used by government and agencies then. I and many others disliked that word extremely. It sounds/reads like a *faint pejorative*, not at all like any kind of meaningful characterization of what these great forests were truly like—**magnificent**, and *unique*!

So after the conference we agreed to form ourselves, all of us, into a 'Forest Alliance' and try harder to get

more favorable rules and legislation. By the way, as I recall, those were also the years when senators Hatfield and Gorton *et al*, were attempting their infamous logging-permitting legislative riders to overrule the court cases we were winning. Hatfield was on the Appropriations Committee then, lots of power thus... another subject for another time.

So I got myself appointed to the 'Naming Committee', i.e., "What Should We Call Ourselves/What Will Be the Name of our new ALLIANCE"? We met a few days after, also in Portland I recall. We discussed names like *Primitive* and *Virgin*... others too, pros & cons, etc. And a little later, the word *ancient* popped into my mind as we were searching for a short way to *best/better* describe what was truly at stake here—viz., these were not just "any old trees".

So when I blurted out the word *ancient* it seemed to ring a deep bell inside the hearts and minds of all the comrades gathered together—and one by one, they exclaimed "yes, yes, that's it!"

So that became our 'new' name, enthusiastically adopted, and attached to our official announcement of the creation of the 'Ancient Forest Alliance.'

I first realized that this name was most truly a powerful new weapon in the ongoing forest wars when I was back at my office in Washington about two weeks later, attending one of

CONTINUED NEXT PAGE



## Ancient Forest origins

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those cocktail party fundraiser/whatever events that we lobbyists often attended in order to make new contacts, or learn new information, etc., etc. And amid all the tinkling of glasses and chatter with old friends or new acquaintances, I heard a voice: "Evans, Evans over here, over here...!"

I followed the voice-sound through the crowded room, and there was my friend, George Cheek! George was a major lobbyist for the timber industry, so obviously not a 'policy' friend. We had often crossed verbal swords at various hearings or other meetings in our daily work, but we liked and enjoyed each other's company on many other things.

So I worked my way over to him: "Hey George, how ya doin,'" etc. "WHERE'D Y' GET THAT WORD, WHERE'D YOU GET THAT WORD?" he asked. I was puzzled. "What word, what you talkin' about?" I responded.

"Ancient," he said; "as soon as we saw that, we knew we were dead...."

### **Join our N3C Facebook page!**

*We're up to 655 friends and growing. Help us build our clout by friending us and then recommending our page to your friends concerned about preserving the North Cascades.*

*591 people  
like this*



# Skagit River Project Relicensing: extended negotiations

By Dave Fluharty

You can always tell when things are getting serious in a negotiation when the discourse turns to semantic arguments. This author was taken to task for the article in the Summer issue of *The Wild Cascades* by none other than the Director of Seattle City Light's Natural Resources and Hydro Licensing Department, Chris Townsend. Mr. Townsend wanted it understood that "the Final License Application (FLA) is a complete document that presents mitigation measures that directly address impacts of the project." Further, it was stated that all the studies were complete. I had stated that the FLA is not complete and does not contain agreed mitigation measures and that studies were still in the process of being completed.

Can we both be right? Sure. SCL was under pressure by the schedule for the FLA submission dictated by the Federal Energy Regulatory Commission (FERC). What was submitted was 15,000 pages from SCL that SCL believes serve as its application meeting the requirements of FERC. I was arguing that because the FLA did not include the issues that from the beginning were supposed to be part of the FLA, i.e., the Settlement Agreements, that the Application was incomplete. If it were complete, why has N3C, along with tribes, agencies and other parties, been attending meetings all summer to discuss issues that we were promised would be in the FLA as submitted? SCL now says that "once a settlement agreement is reached, SCL will submit an update to FERC and the conditions of the agreement would become part of the new license". FERC has already responded to the FLA asking for additional information (so it is not complete?) and just last week new study reports were posted on the FERC project website (were studies complete?). So, yes, we can both be right.

There is much more to the story that can only be told when N3C is no lon-

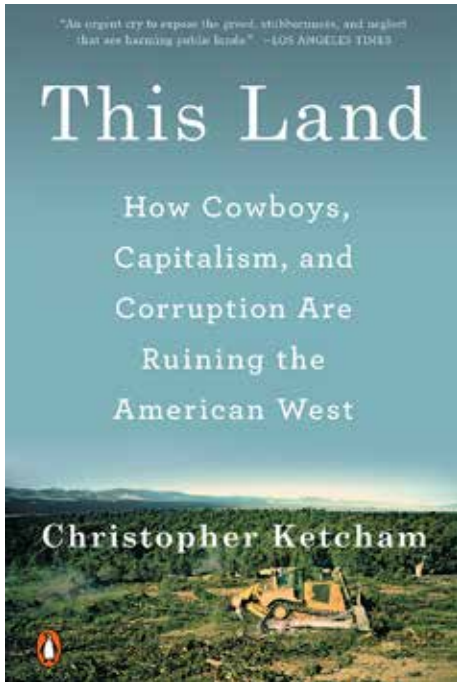
ger subject to a Confidential Negotiation Protocol. However, it is fair to say that there are major unresolved issues with respect to Settlement agreements for recreation, fish passage, and the Environmental Learning Center that are very important to N3C. Suffice it to say that SCL and the National Park Service are in serious differences of opinion on critical issues that transcend the Settlement negotiations because they deal with disputes over jurisdiction. One issue that has surfaced on the public FERC project website is whether SCL needs a permit from the NPS to operate drones to inspect its power transmission infrastructure or if FERC has jurisdiction over drone use within the hydro project boundaries. That's just the tip of the iceberg of important regulatory issues that must be resolved before the practical operational parts of the Settlement Discussions can be finalized. As excruciating as long meetings may be, N3C takes the position that we will not support Settlement until these recreation, fish passage, environmental learning center issues are part of the Settlement Agreement and covered in the FERC License.

In conclusion, let me report that Seattle City Light's Final License Application does represent the City's commitment to stewardship and that there are many positive elements in what has been submitted so far. Given that the new license will be granted for 40-50 years, it is important that the adaptive elements to changed circumstances like climate are included in the license and that mitigation elements for environmental impacts of the hydropower facilities affecting the whole Skagit River ecosystem are continuing to be made. The extended negotiations over the Settlement Agreement will ensure that the new license will be resilient to the challenges ahead.

## Book Review

# *This Land: How Cowboys, Capitalism, and Corruption are Ruining the American West* by Christopher Ketcham

Reviewed by David Fluharty



Anyone who values the public lands of the West needs to read this book in its entirety. Its three parts—The Battle (a history of public lands), Betrayal (how we have mistreated them) and Resistance (how people like N3C members are fighting back) is the best treatment of what is wrong with public land management today and how we got to this hot mess. You travel with Ketcham around the West seeing the beauty and the horrors of the public lands, meet the villains, the managers and the resisters (heroes). Through their eyes and experiences, Ketcham weaves a story of that is informative, credible and insightful about the sorry state of the American West. It is not a pretty picture.

Most of us are aware of the 450 million acres of land that the United States wrested away from its original peoples and held to protect it from the

ravages of private exploiters ranging from cattle and sheep ranchers that overgrazed, miners that polluted the waters, and loggers that sought to log the West the way they had decimated the East and Midwest forests. These are the lands managed by the Bureau of Land Management, Forest Service, National Park Service, Fish and Wildlife Service in trust for the public. Despite the noble cause of conservation that emboldened Presidents and Congress to retain these lands for public purposes, we learn how these agencies are captured by private interests and the protections undermined.

This is a book that disabuses its readers of any political naïveté about the current state of public lands. The geographic focus is primarily on the Southwest but one can find similar examples from the Pacific Northwest

without having to look very hard. I was motivated to purchase this book because I found a reference to it in a short article in another publication. That reference was to Chapter 20 of *This Land* describing how Congress passed the Omnibus Public Land Management Act in 2009 which included a provision for the Collaborative Forest Landscape Restoration Program (CFLRP). One would think that such a program would help forests recover from years of clear cuts. But, no, it has become principally a way, as N3C has learned in Northwest Forests, for the Forest Service to restart logging under the guise of preventing forest fires and thinning forests to promote so-called forest health. Forest health is defined as meaning growing trees faster so

they can be logged later. N3C has been reporting on the collaboratives in the Okanogan/Wenatchee National Forest and the Mt. Baker/Snoqualmie National Forest. Ketcham documents the subterfuge that the CFLRP has visited on ecosystem-based forest management. Further, he reveals that some of the largest most credible national conservancy organizations pushed hard for the legislation and continue to support it despite the damage it does to forests and wildlife.

The text is hard hitting. I don't know how many times I had to put the book down and say, "No, Ketcham is making this up." Unfortunately, Ketcham is relentless in providing evidence of what he is writing so he cannot be dismissed. The venerable *New York Times Book Review* editors wrote, "*This Land* is a catalog of depredations

wrought by grazers, drillers, miners, loggers and holders of public office who abet them, betraying their duty to the public trust in favor of money and political power.... Ketcham's book is ultimately a call to arms." One can only have sympathy for the land managers who strive to do the right thing and are intimidated by the irresponsible users of the public domain and who are not supported by their agencies.

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*A credible,  
insightful look at  
the sorry state of  
public lands*

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## Book review

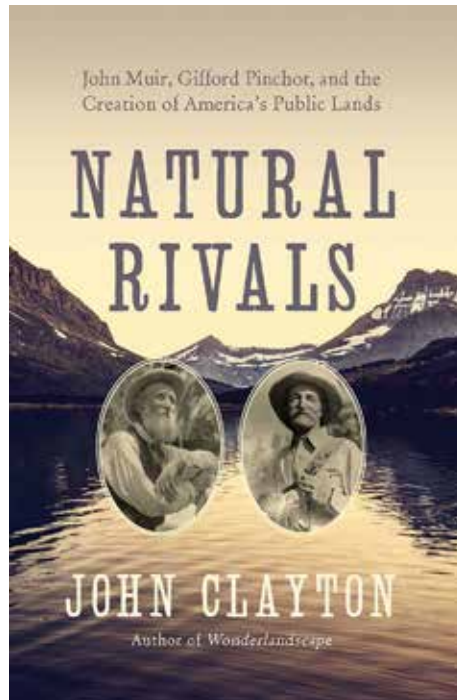
# *Natural Rivals: John Muir, Gifford Pinchot, and the Creation of America's Public Lands* by John Clayton

Reviewed by David Fluharty

If you are like me, we think we understand the history of public land designation in the United States. We also are familiar with two famous persons—early National Parks and wilderness advocate John Muir and National Forest Service founder/advocate Gifford Pinchot—who are characterized as rivals for preservation and conservation respectively. The concept of Preservation, where public lands are protected and managed to be “unimpaired” for future generations, is frequently contrasted with Conservation or “wise use” that sustains renewable resources for future generations and manages non-renewables to account for their environmental impacts. Both concepts are protection- and future-oriented for public lands but they diverge with respect to how they treat consumptive or extractive use of natural resources.

Our own North Cascades Conservation Council was founded with these concepts firmly embedded in our culture, i.e., allowing consumptive use when it can be sustained without environmental impacts but firmly committed to preservation. Finding that balance between sustainable use and protecting the North Cascades unimpaired has guided N3C actions.

Clayton, whose previous book, *Wonderlandscape: Yellowstone National Park and the Evolution of an American Cultural Icon*, established him as a competent interpreter of National Park history, turns his talent to telling the story of the complex interplay of preservation and conservation in the retention of public lands in the United States. At the outset, I am critical of the focus on public lands without acknowledging that the Western Land movement was a land grab from the indigenous peoples who occupied



North America from time immemorial. That said, the original policies of the United States were raucously aimed at settlement and development until it became obvious that certain lands like Yellowstone and Yosemite Valley had transcendent values that justified preservation and other lands were necessarily maintained in the public trust to avoid unsustainable and environmentally destructive uses. This realization did not come easily and it took many a President and Congress to finally reserve large areas of the national estate for public trust lands. That story is well told by Clayton as the drone theme in this book. I learned a lot.

The descant theme is told via a thorough examination of the relationship between John Muir the preservationist and Gifford Pinchot the conservationist. The major underlying theme of *Natural Rivals* is that the two main characters actually had more in com-

mon than they diverged. [For history buffs, you may recognize the title of this volume as a riff on *Team of Rivals* by Doris Goodwin about Abraham Lincoln's choice of members of his cabinet].

My interest in *Natural Rivals* was piqued by the title of the book because I, too, had been indoctrinated to seeing the two early public lands advocates as opponents. In my opinion Clayton does an admirable job of tracing the many intersections between Muir and Pinchot from the first meeting at the Pinchot parents' behest in their patrician home to the two men's eventual final engagements surrounding the National Forest Commission, where Pinchot was a member and Muir an invited advisor. In between, the careful scholarship of Clayton introduces the reader to other players in their roles in the preservation/conservation debates over public lands, like George Perkins Marsh, Charles Sargent, William Stiles, Robert Underwood Johnson, Ralph Waldo Emerson, Bernhard Fernow (for whom a mountain along Highway 2 in Washington is named) and others.

Clayton writes it well. “A century-plus of public lands history shows profound change in landscape conditions, in philosophies used to manage the lands, and in how people perceive the lands' very purpose. Amid this change, I understand the desire to provide continuity by highlighting an alleged continuing preservation-versus-conservation divide. A Muir-versus-Pinchot dichotomy becomes a useful hook on which to hang debates. It has great explanatory power—but its continuity is an illusion. Just as Muir and Pinchot sometimes expressed that divide and sometimes didn't, so did all the other characters in this story. ....”

# Close roads to lessen wildfires

By George Wuerthner

The U.S. Forest Service's wildfire policies are misdirected toward logging while ignoring the real threats that could lead to blazes.

## Humans and wildfires

Human-started wildfires accounted for 84 percent of all wildfires between 1988 and 2012, tripled the length of the fire season, dominated an area seven times greater than that affected by lightning fires, and were responsible for nearly half of all areas burned. More recent studies put the figure of human-caused wildfires even higher.

The problem is that humans create ignitions when fuels are sufficiently dry enough to ignite and carry fire but when lightning is rare. In other words, humans expand the fire season and multiply fire starts over natural conditions.

Of these human-caused wildfires, 95 percent occurred within 1/2 mile of a road. Roads put more people in the forest matrix where everything from an untended campfire to grass fires from hot exhaust pipes can ignite the woods.

While roads may slow or stop fires under low or moderate fire weather conditions, they are no barrier to wind-driven blazes.

Roads favor the establishment of flammable weeds, which hasten the spread of fire. Since canopy cover is removed along road corridors, they also act as heat conveyors to adjacent forested areas.

Thus, one of the most effective ways to reduce the threat of wildfire is to close roads.

Even so-called temporary roads increase the risk of wildfire. Many temporary road closures are ineffective. Dirt bikers, ATVs, mountain bikes, and hikers easily get around gates.

## Forest management is delusional

Instead of implementing an aggressive road closure program, the agency spends most of its funds creating new roads with logging and thinning projects.

Winds blow embers over and around thinned forests. Indeed, thinning and prescribed burns may even increase fire spread. Thinning opens the forest stands to greater drying and greater wind penetration.

Prescribed burning favors the regrowth of fine fuels like grasses, shrubs, and small trees that are the primary "fuel" in wildfire spread.

Many studies document the failure of "fuel reductions" in halting fires.

The failure of "active forest management," i.e., logging to alter wildfire outcomes, is one reason why more than 200 scientists wrote a letter to Congress: "Removing trees can alter a forest's microclimate, and can often increase fire intensity. In contrast, forests protected from logging, and those with high carbon biomass and carbon storage, more often burn at equal or lower intensities when fires do occur."

Various studies have also shown that the probability that a wildfire will encounter a "fuel reduction" site is extremely small—typically less than 1 percent.

Instead of funding "fuel reduction" in the backcountry, the FS could spend its funds eliminating roads as potential pathways for ignitions. Such policy changes would be a far more effective and economical means of protecting our communities.

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*Ecologist George Wuerthner is the author of 38 books on environmental issues and natural history including Wildfire: A Century of Failed Forest Policy.*

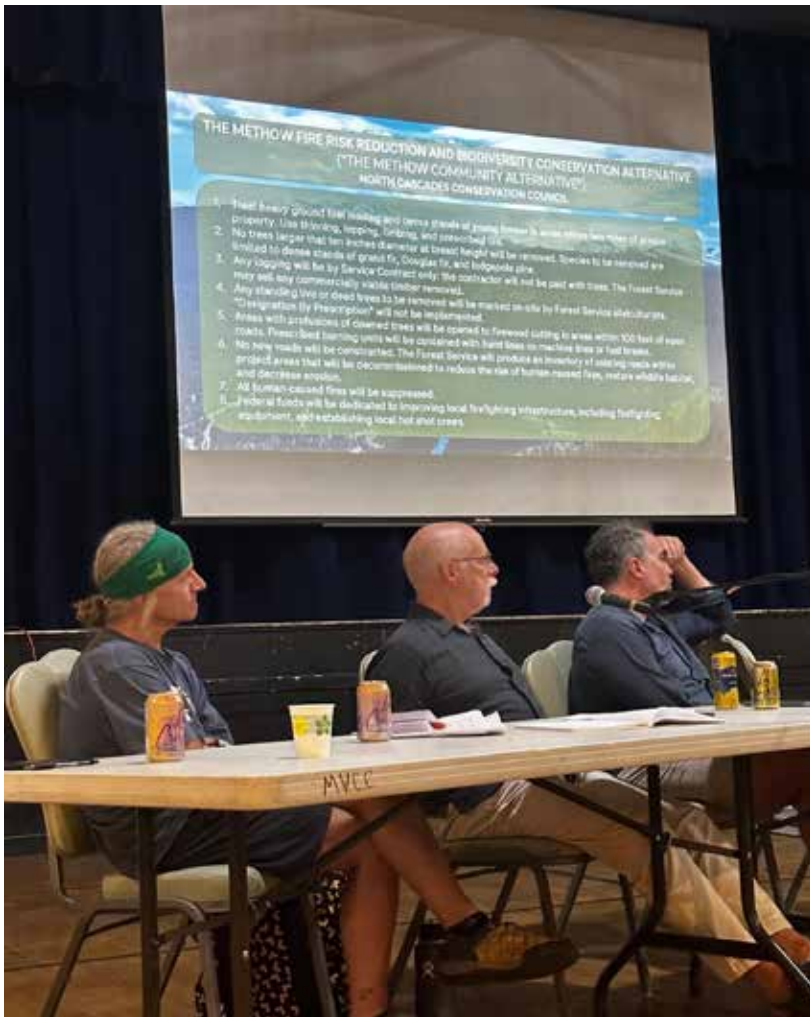
# Chelan County starts "visioning" process for Stehekin

N3C board members Carolyn McConnell, Dave Fluharty and Phil Fenner met with Mike Kaputa, Chelan County Natural Resources Department Director on Zoom on October 16 to discuss the recently released "Stehekin Community Planning Project" Request for Proposals from firms providing planning services. There is substantial agreement on the need for community planning in Stehekin to guide development and strategic community investment.

The dilemma between preservation and development of one of the last places of its kind in the lower 48 States appears to be at stake, with some project goals reflecting limits and others promoting growth. There will be a pre-submittal meeting in November and the deadline for submittals is December 8, with selection of contractor forecast for January 2024. N3C reminded Mr. Kaputa of our role in raising national awareness of the unique status of Stehekin and bringing the National Park and Recreation Areas to fruition in 1968, and made it clear we will be closely following developments with this new planning project so that preservation is prioritized. Mr. Kaputa expressed Chelan County's commitment to transparency in the process in a way that considers both the local community and external interest.



# N3C fire education meeting a big success



From left to right, Michael “Bird” Shaffer; Facilitator George Schneider; NCCC attorney Liam Sherlock. —RIC BAILEY PHOTOS

Fire guru and decorated scientist Dominick DellaSala, Environmental Attorney Liam Sherlock, skiing sensation and lifelong Twisp resident Michael “Bird” Shaffer, and N3C’s Ric Bailey presented “the other side of the story” about wildfire at a public meeting in Twisp on August 17.

The 70 attendees heard that climate change has altered the entire equation with wildfire behavior, and that logging isn’t going to save anyone from wildfires. In fact, it may actually make them worse. DellaSala explained that 84 percent of wildfires in the U.S. are human-caused, and that prevention would be more effective than attempting to radically alter the forest ecosystem with logging. Bailey noted the Forest Service’s hubris in claiming it can reconstruct the forest ecosystem in one fell swoop with a massive logging operation.

Sherlock, who is representing N3C in our lawsuit challenging the Twisp logging project, explained that the National Environmental Policy Act requires a much more thorough and thoughtful examination of the impacts of such projects than the Forest Service is giving, and that proposing only a single alternative in their Environmental Assessment is irresponsible and illegal.

Shaffer provided an impassioned plea to local residents to protect their home. N3C supporter and video producer Alexander Bosco presented a five-minute program called “Our Backyard,” that extolls the virtues of life in the Methow Valley and how the planned logging of nearly 200,000 acres of national forest land threatens the valley’s water, scenery, recreation quality, fish and wildlife, and biodiversity.

The meeting was a response to the Forest Service’s failure to provide equitable opportunities for influence to the Methow Valley public. Bailey sharply criticized the favoritism and privileged access being given to the North Central Washington Forest Health Collaborative by the Okanogan-Wenatchee National Forest.



The complete N3C Methow Community Alternative is here: <https://tinyurl.com/yeyvjb23>



## N3C reveals plan for a fire-safe and ecologically sound community

By Ric Bailey

Tragically, the U.S. Forest Service has done a tremendous job of rejuvenating their timber production programs using fire as a surrogate. Massive logging projects like those planned in the Methow River Watershed that claim to be making the forest more fire-resilient by reconstructing the forest ecosystem by logging, don't stand to reason, let alone science.

As previously noted in *The Wild Cascades*, the Forest Service has short-circuited federal laws, ignored credible science, and implemented a shamelessly biased public process to pursue its timbering agenda.

N3C has been approached by several former Forest Service employees who resigned, and have rebelled against

the agency's malfeasance. They cite their appreciation of N3C's willingness to do whatever it takes to uphold federal laws, and to challenge the increasingly egregious claims that these projects won't have a significant impact on the environment.

The more visible conservation organizations in Washington, in particular members of the North Central Washington Forest Health Collaborative, continue to support the Forest Service, and assist the agency in the preparation of these logging extravaganzas. This includes The Nature Conservancy, Trout Unlimited, The Wilderness Society, Conservation Northwest, and the Methow Valley Citizens Council.

Highlighting these "landscape-scale"

projects are the invasion of Late Successional Reserves designed to protect imperiled ancient forest-dependent species, logging roadless areas, allowing the logging contractor to select the trees to be cut, and denying the public opportunities to present their own ideas on how to pursue fire safety.

N3C has a solution to the problem: compel the agency to consider our alternative, the Methow Community

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*Looking at the 2021 Cedar Creek Fire area at Virginian Ridge near Mazama—the photo on page 17 contrasts the impacts of fire vs. logging with an example of logging on the Mission Project in 2022. —Ric BAILEY PHOTO*



Alternative. We're building a record of the agency's refusal to consider any alternative but the ones they develop with the help of the Collaborative.

With its undemocratic process, the Forest Service may be in violation of the 2009 Collaborative Act, and the Federal Advisory Committee Act, and N3C intends to test this theory in federal court when the time is ripe.

N3C's Methow Community Alternative was developed after consultation with fire scientists, forest ecologists, and the local public. It rejects the principle that we can log our way to fire safety, that logging can replicate "historic conditions" that were shaped by fire, and the juvenile contention that the fewer trees in the forest, the less fire we'll have.

Following are the highlights of our plan:

(1) Mechanical fuels reduction (including prescribed burning) will be limited to areas within a maximum of one half mile from private property.

(2) No trees larger than ten inch-diameter at breast height will be removed. Species to be removed are limited to grand fir, Douglas fir, and lodgepole pine.

(3) Methods for reducing fuel loads may include limbing, lopping of downed material, reduction or removal of dense stands of young timber, and prescribed burning.

(4) Yarding of logs to be removed will be limited to low-compaction methods, including feller-bunchers, or skyline yarding systems. No skidding of logs across topsoil is permitted.

(5) Logging will be by Service Contract only: the contractor will not be paid with trees, but with federal funds earmarked for fuels reduction.

(6) Any standing live or dead trees to be removed will be marked on-site by Forest Service silviculturists. "Designation By Prescription" will not be implemented.

(7) Prescribed burns will be monitored by firefighting personnel on-site. Fire containment lines will be limited to hand-construction—no machine construction.

(8) All unmerchantable material



created from logging activities will be broadcast burned within one year of project completion—no pile burning will be implemented.

(9) No new roads will be constructed. The Forest Service will produce an inventory of existing roads within project areas that will be decommissioned to reduce the risk of human-caused fires, restore wildlife habitat, and decrease erosion.

(10) Logging and burning will be precluded from "Late Successional Reserves" under the Northwest Forest Plan.

(11) The Forest Service will intensify its patrol of recreation sites and areas during times of high fire danger, and increase signage and other means of educating the public about the risk of fire. It will develop an evacuation plan for Twisp River campers, hikers, and homeowners.

(12) The Forest Service will assist local communities with establishing and maintaining an emergency evacuation system that will include sirens and other means of warning people of fire danger.

(13) The Forest Service will work with local communities to establish ordinances requiring home hardening upon construction, and to facilitate fire-wise improvement of existing homes, leveraging available state and

other funding with federal dollars.

(14) Federal funds will be dedicated to improving local firefighting infrastructure, including firefighting equipment and training, and employing local "hot shot" crews.

(15) The Forest Service will develop a plan for managing wildfires post-project. It will allow naturally-ignited fires to resume their role in shaping the ecosystem, limiting suppression to presumed human-caused fires and fires that threaten homes and communities.

Please help N3C to pursue democratic management of our public lands by contacting Washington's senators to insist that the Methow Community Alternative be included in the Forest Service's NEPA analysis, and that all people be given the same opportunity to influence agency actions that's now being given exclusively to the North Central Washington Forest Health Collaborative.



# NORTH CASCADE GLACIER CLIMATE PROJECT 2023



## Lower Curtis Glacier, Mount Shuksan

By Tom Hammond

*This report covers only one of eight glaciers evaluated by the North Cascade Glacier Climate Project (NCGCP) team, involving about 13 miles of hiking over three days and two nights. The Project in its entirety involves more than 100 miles and 30,000 feet of elevation change—strenuous hiking and alpine travel over two and a half weeks with no helicopter support, respects Wilderness ethic and does its level best to practice Leave No Trace (LNT).*

2023 marks the 40th anniversary of the NCGCP—a remarkable run of continuity unmatched on the planet: this is humanity’s longest running and most comprehensive study of slope and alpine glaciers across an entire mountain range. From wet west to dry east, cool north to hot south, high-elevation volcanoes to low-elevation avalanche-fed glaciers, and perhaps most important, from slope aspects that favor more insolation (south-facing) to sun-shaded (north-facing), the study deliberately seeks to minimize seasonal and locational variability to get a full picture of climate change. Two of the glaciers in the first iteration of the study in 1984—Spider and Lewis—no longer exist.

2023 also marks my 20th anniversary on the project. I could not have imagined two decades ago what I would witness or experience—certainly not the relationships built with the Pelto family and others, and not the challenges and resulting growth I have experienced. I am thankful for each and every season.

I often refer to Shuksan as “The Flagship of the North Cascades” for good reason. Shuksan means “Thunder” in the language of Nooksack/Salish aboriginal First Nations tribes—not because there’s lightning, but because of the roaring avalanches that the myriad hanging glaciers, icefalls and towering seracs generate as they tumble down the steep (read: vertical) facades of this improbable massif. At least there used to be huge avalanches and the attendant roar of thunder, but the glaciers, even the ones high on Shuksan, are now so thin and in repose that there are few

*The western portion of the glacier is literally riding up and off the bedrock.*  
—TOM HAMMOND PHOTO

seracs or icefalls to be seen or heard. Still, Shuksan rises so abruptly and so starkly above the surrounding terrain as to defy gravity and captivate attention. The summit tower of Shuksan is flanked by two incredible groups of towering fangs draped with glaciers, mountains unto themselves: Shuksan Arm and Jagged Ridge. Think of the bands of clouds rotating around an intense low-pressure storm system, or perhaps more accurately, the star-studded arms of a spiral galaxy spinning and swirling, and you start to realize just how immense and impressive is the greater Shuksan massif. If one were to place this complex on the Olympic Peninsula, it would overlay nearly half the Olympic Mountains!

I was surprised to hear a team member refer to Shuksan as “she”. To anthropomorphize Shuksan is the epitome of human folly: Shuksan is Shuksan—no care or concern about things crawling around. Shuksan certainly supports life in all forms near

and far, but Shuksan is just as likely to inflict harm and death as to provide the foundations of life.

On Monday, August 7, the forecast called for a few days of cool, cloudy conditions with showers turning to outright rain by Tuesday night—welcome relief after a couple of months with minimal measurable precipitation and hot temperatures. I was a bit disappointed we might not get to see Shuksan, so wrapped

in mists and fog as to be practically invisible, but it was better than overheating, being swarmed by bugs (bugs don’t like showers) and being greased and sticky with sunscreen all the time.

The hike in was somber. The trail is now three lanes wide in many places as overuse and pets have trashed the entire route. Despite it being a Monday, the lake was packed with tents, humans, and dogs. One dog was running loose, terrorizing the few pikas around.

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*The collapse of the west portion, roughly half the glacier, is unmistakable.*

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Shuksan was completely obscured by clouds when we arrived at camp, with only the lowest portion of the Lower Curtis Glacier visible. One of the most magical things one can experience in the mountains is lifting clouds and expanding views. Unexpectedly (given the forecast) that is exactly what happened. It was a real treat to watch the Unveiling of Shuksan. First a hint of upper glacier here, then a high ridge there. Better still to hear the exclamations of surprise and wonder from the team. A few have never been to the North Cascades, but come from places like Alaska (Chugach Range), India (Himalaya) and China. To a person they were amazed to see the full grandeur of Shuksan, and marveled at the local relief—the mountain and attendant ridges here rise more than a vertical mile above camp, and nearly a mile and a half above the valley of Shuksan Creek. Let me emphasize vertical.

*The unveiling of Mt. Shuksan on Monday evening. —TOM HAMMOND PHOTO*





*Before 2015, the area upon which this flower lives was under 30 feet of glacier ice. A monkey flower growing in three tablespoons of rock flour—soft, delicate, beautiful life from a scoop of grit. Never underestimate the power of all that is true and good. —TOM HAMMOND PHOTO*

Tuesday, August 8 dawned with some of the best clouds and lighting I've ever seen on Shuksan, and I've been exploring every side of this massif for 40 years. Wisps and swirls of cloud were playing about the summit towers, at times cloaking the crags and fangs in shrouds of shredding mist. I snapped a couple of photos literally in my skivvies, running around our little ridge camp to attain a preferred perspective. At one point a sunshaft hit the shrouds and summit and refracted up to the sky! A real gift, and a harbinger of things to come...

I noticed what looked like new rockfall on the Lower Curtis Glacier along the western margin of the glacier. Either new rockfall or more disturbing, exposed rock due to a significant and devastating loss of snow and ice. I got a real bad feeling—almost like a darker cloud was hanging on and over that area.

The ascent to the Lower Curtis Glacier was marked by plenty of blueberries in the usual places. Mauri and his daughter Jill Pelto gathered a couple of pints on the approach. Now there's multi-tasking—berry picking while measuring glaciers. I prefer the eat-as-you-go method and enjoyed dozens of delightful, ripe berries. The route passes directly below some of those neck stretching and head-craning views of impossibly steep walls to be sure. A characteristic of many mountain ranges on the planet is known as "foreshortening." From a distance mountains look vertical, but when actually on them, one realizes they aren't vertical and in fact may be approachable. Shuksan, as with much of the North Cascades, is the opposite. I shared a key rule of thumb about these "little" mountains: The closer you get, the steeper they are!

As we made our way to the terminus and onto the glacier, it became apparent the loss of mass/volume this year is similar to 2015—the year of the most apparent and devastating loss—the beginning of the rapid collapse of

the Lower Curtis Glacier. I mentioned to Mauri the exposed rock along the west margin of the glacier and he confirmed as much. Later, Jill and I agreed we'd never seen so much melt in one year and the exposed rocks were of an extent we'd never seen. Crushing.

Heck, one portion of the glacier along the west margin is literally riding up and off the bedrock! I asked Mauri about the loss of elasticity and in a voice tight with incredulity he told me that the glacier is melting too fast to exhibit "normal" behavior. Ouch. I suspect there was a transverse acceleration component to this section. The glacier is now flowing more east-to-west than "top to bottom" as the eastern couloir becomes the dominant contributor to this dying glacier.

Walking the glacier was an incredible experience. We were able to get nearly to the terminus walking thin ridges of hard blue ice with significant crevasses on either side. A misstep or stumble here would mean broken bones and airlift off the glacier at best, and if involving the skull, death. No fear, just attention to detail, deliberate placement of each step, and respect for the situation. To tread where we were was unthinkable even five years

ago, and impossible before 2015.

At one point near lunch time we noted how comfortable it was—pleasant with intermittent sun and cooling clouds. Heck, neither of us had even put on sunscreen.

These were the most benign conditions I've

ever experienced on any glacier over the 20 years I've been on the Project.

After lunch the team and I were engaged in the longitudinal profile of the glacier, measuring the extent of the glacier from east to west. In years/decades past the glacier was roughly the same elevation from end to end (or side to side as the case may be). This year the collapse of the west portion, roughly half the glacier, is unmistakable. Not only is the rockfall more exposed and extensive than ever, but the elevation difference of 100-200 feet is

*To tread where we  
were was  
unthinkable 5  
years ago, and  
impossible before  
2015.*





astonishing. It has been trending this way since 2015, but this year especially it hit me just how large the difference in elevation has become! The picture (above) is taken from what is becoming a precipice separating high east from low (soon to be gone) west.

As we neared the western extent and entered the rock/debris field, I had an overpowering haunting feeling, as if every hair on my body suddenly was standing on end. Jill and I were excited to work through the debris field (Jill declared it “a mess”) in search of epidote and other spectacular, sparkly minerals. Instead, I first found a picket, then the remnants of a water container. We realized we were entering an area of debris from a fallen climber. More artifacts lay in the next boulder field. Jill stayed put while I made my way over to inspect these items. More gear of a fallen climber, including a crushed climbing helmet. The death of this glacier, and so many like it, manifested in that moment.

Mauri and Mariama did a quick inspection to ensure no obvious human remains. Then we left the area and the glacier—no banter, no rock hunting, no conversation. The next day, the

forecast rain showed up right on time and provided for a cool, wet hike to the car park.

### Epilogue

More and more people are visiting the area. They see the team on the glacier and assume they can do what we do. They come to the margin of the glacier ill-prepared, ill-equipped and

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*The glacier is melting too fast to exhibit “normal” behavior.*

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with no situational awareness (and sadly with dogs threatening the local inhabitants).

There seem to be more pikas and even a marmot or two in the talus basins before reaching Lake Ann. Hopefully they’re both making a comeback. No other wildlife to report other than the usual grouse below Shuksan Arm.

*The collapse of the west portion of the glacier is unmistakable. —TOM HAMMOND PHOTO*

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The numbers in the box on page 22 are orders of magnitude greater loss than any other year except perhaps 2015. Measurements were difficult because there was nothing to measure. In most all locations, there was no snow protecting the glaciers, so melt is off the scale. Words cannot communicate how devastating this is for the ecology of the Pacific Northwest. Salmon recovery? Orcas? Farming? Hydropower? The situation is dire and not getting better.

CONTINUED NEXT PAGE

## Lower Curtis Glacier

CONTINUED FROM PREVIOUS PAGE

### NCGCP Project members

Mauri Peltó, Science Director

Jill Peltó, Art Director

Julia Ditto, Field Artist

Mariama Dryak-Vallies, Field Scientist

Muruganandham Shivaprakash, Field Scientist

Kai Yuan Wang, Field Scientist

## Glacier Mass balance

Columbia, Monte Cristo Range: minus 2.5 meters

Rainbow, Kulshan (Mount Baker): minus >1 meter

Sholes, north of Kulshan: minus 2.5 meters

Lower Curtis, Mount Shuksan: minus 2.5 meters

Easton, Kulshan: minus 2 meters

Daniel, Mount Daniel: minus 3 meters

Lynch, Mount Daniel: minus indeterminate

Ice Worm (aka Hyas Creek), Mount Daniel: disintegrating—effectively no longer exists

Lewis, above Rainy Pass: no longer exists

Spider, Chiwawa Range: no longer exists

## Attention N3C members

Moved? Please tell us! It's much easier to update our records and make sure you get your TWC than to wait for the P.O. to return it to us. Thanks!

Want an electronic TWC instead? Just let us know and we'll send it as soon as it's ready, usually a couple of weeks before the paper copies arrive. Not sending paper will save some trees and some postage.

Email us at [N3Cinfo@northcascades.org](mailto:N3Cinfo@northcascades.org) and we'll take care of it.

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The colors of fall on a traverse of Teebone Ridge above Monogram Lake, North Cascades National Park. —MARK NELSON PHOTO



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*Copper Creek Valley fringed in the gold of larch trees. Copper Creek Pass. Okanogan-Wenatchee National Forest.*  
—MARK NELSON PHOTO