

## Journaling

"This much is clear from this poll: in general, lab scientists working in biochemistry, cell, and molecular biology tend to keep much better notebooks documenting their science than field biologists working in the areas of ecology, behavior, and conservation biology."

Erick Greene, Chapter 12 in *Field notes on science & nature* (2011)

## Old school

A strong contender for my all-time favorite book is *Field notes on science & nature* (2011). Of its 14 authors, none could be called luddites, yet nearly all remained staunch advocates of pencil and paper.<sup>1</sup>

Granted, that book is already (in 2022) more than a decade old. Its senior author, E.O. Wilson, has passed. Every year we move farther from pencils and physically archived journals. If *Field notes* were written today, there'd be more chapters about start-to-finish digital journaling, and fewer advisors nostalgic about HB2 pencils or (can you believe it?!) print-in-the-field polaroid cameras.

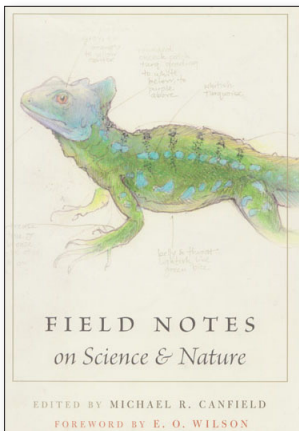
But whether high-or-low tech, few would disagree that journals are enormously valuable. Done well, they're "*letters to the future*"—title of another chapter in *Field notes*. Declines in journaling have more to do with perceived efficiencies ("*who has time?*"), and, to some degree, a shift in opinions about hard-science vs soft-arts.<sup>2</sup>

## The tech-enhanced observer

My mentor in most aspects of digital and cartographic technology—Bob

1 The sole dissenter, Piotr Naskrecki, titled his chapter *Note-taking for pencilphobes*, concluding: "There is no denying it, the era of paper is fading fast, and I can easily imagine a time when students will be perplexed by the strange, primitive instrument known as the pencil. As far as I am concerned, this time cannot come soon enough."

2 Greene's students are initially "chilly" toward his journaling requirement: "I am interested in science, not creative writing." "This is so lame—I already did my 'expressive arts' requirement." "Do you want us to meditate and write about that too?" Fortunately, these skeptics almost universally "thaw" as they discover how illuminating and focusing the practice can be. Your "journal" may look nothing like any of the examples in *Field notes* (2011) or my geeky (and hugely labor intensive) documentation. The point is—are you okay with learning and research as an *in-one-ear-out-the-other* process? Because no matter how good your memory, it **really** will evaporate. If you find that unacceptable, start thinking about what journaling—in whatever form—could look like for you.



Christensen—is almost young enough to be my son. This relationship is probably not as 'flipped' as it seems. Indeed, in the world of cellphones, apps, online communications, etc, Cathy and I will surely learn more from you, our "students," than we might hope to teach. As a devotee of the long-view, this is part of the appeal for me of my forté, natural history. There are teenaged concert pianists, and 20-something Silicon Valley CEOs, but there's probably no master naturalist under 40.<sup>3</sup>

So, it must follow that tech-enhanced observation is a collaboration, of elders most experienced at seeing forests (or in this case rocks?) through trees, with youngsters most proficient and creative in design of new perceptual and disseminational tools. I hope this class embodies the best of that two-way instruction.

I try to periodically document and update my entire ground-truthing protocol, from prep to field to summary. Such updates typically follow get-togethers with Bob Christensen, who's always several jumps ahead of me, technologically, and recommends app or device replacements. That unfortunately hasn't happened since

(wow) . . . 2012.

So I have a call in to Baikarkabob, who is possibly the most remote-living and hard-to-reach techno-meister on the planet. If he gets back to me, I'll have some more timely advice to pass along. Otherwise, please note that the following tips&tricks are about 10 years out-of-date.

**20220919: Just back from the amazing trip to Jil'kaat/Jil'koot Aani.** Now that we've traveled together, hopefully you're starting to consider the digital portion of your journaling workflow. On Saturday evening in the heliski lodge I projected the day's drone movies, and some examples of named-panostitched-&-numbered still photos from the trip-to-date. Often, in the heat of multiday field trips, that—and a few scribbled notes—are all I can finish before sleep overcomes.

But these are just the first steps. Before pdf-ing the daily journal out of Indesign, here are the steps, roughly in order. Again, I'm not recommending this as a hard&fast journaling

3 Not that I mind being upstaged by a teenager. It's reassuring, actually, for those of us old-timers concerned about how things will play out in the coming century.

recipe, but merely an example from which you can pick and choose: <sup>4</sup>

- **downloads** to laptop from field devices: .jpgs, mp4s from telecam, iphone, drone (also 4k mp4s), badelf, (for me, Avenza only if not bad-elfing)

- **convert** .gpx tracks to Arc shapefile. Drop it into the .aprx Arc project—in this case my my master-file for the *GCW Atlas* (greater Chilkat watershed). Nice to do this first because, even before the photos get linked, many steps down, having a track on hillshade or orthoimagery may help in giving meaningful names to photos. On our weekend Chilkat jaunt, I didn't have the bandwidth to even open Arcmap, so deferred this until post-trip.

- **drone-vid** The 4K video <sup>5</sup> gets processed into multiple products: **1**) best clips assembled into annotated and/or voice narrated movies **2**) screengrabs exported with prefix # adjacent to any ground-pics **3**) Microsoft ICE stitches from nadir-pass, slow pan or sideways crab **4**) stereopairs from nadir or crabbing flight, generally with screengrabs just a few seconds apart.

- **process & name ground-pics** Load phone & telephoto camera .jpgs to one folder & sort chronologically. <sup>6</sup> Cull duds, adjust color, brightness, shadows etc, especially for pics in suboptimal light (backlit, dim, etc). If you took overlapping photos for panoramas, stitch em

<sup>4</sup> Unless this is the only course you're taking, you simply won't have time to invest as heavily in journaling as I do.

<sup>5</sup> I almost never pause to shoot stills because screengrabs from 4K video, running launch-to-retrieval, look just as good. Not true for newer, high-end consumer drones that take very high-res stills.

<sup>6</sup> Phones (& gps track) will always have the correct time, but most cameras won't, and should be periodically adjusted to match your phone-time. That way, mixed-batch jpgs from 2 or more cameras will sort properly.



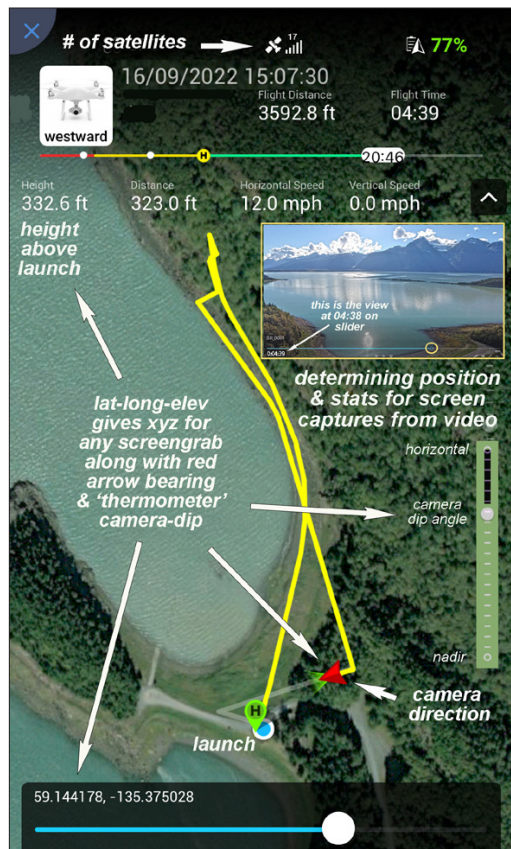
**Above:** Devices used on the 20220916-18 Chilkat trip. Not shown cause I didn't digiscope: Kowa 88mm 60x spotscope. Some took goat pics through this with cellphones ● **Right:** Cloudbased day-1 flightlog over Tléikw Xágu, *berry sand beach* (Lehuna Island). Screengrab inset was taken at 4:39 on the slider. Dragging this flightlog slider to that position gives exact 'xyz' position of the drone. (lat longs on bottom, and height of 333 feet in upper left.)

now. <sup>7</sup> (I took 280 jpgs on day-3. after culls and stitching, compressed to 'only' 93 keepers :)

Give each photo a meaningful name—especially when you may have to defer journaling for days, or when you take a ton of em.

After culling duds, processing photos, renumber, to keep them in chronological order—especially helpful if

<sup>7</sup> Cellphones have simplified panorama-taking with the sideways-sweeping method. But I still take a lot of overlapping panos with my Nikon ultrazoom. I call them 'midzoom' panos. You can 'step them up' along a mountain skyline, but of course it creates a jagged mosaic. Example from our 8-mile stop is on next page.



combining pics from several cameras.

• **'anchor' your pics spatially** There are several ways to mark photopoints. We've been using Avenza so far. Of course all cellphones these days collect lat-long for each shot from their internal GPS, as long as you've enabled location services. So you can map your photopoints whether or not you're collecting an Avenza track. <sup>8</sup>

For maybe 8 years I've been using a tiny bluetooth aviator's GPS called Bad Elf gps pro+ to record high-resolution tracks. It's early as good under canopy as ridiculously overpriced Trimbles, & dispenses with laborious postprocessing. Not all cameras have internal gps, and if they do, lat-long's won't be as accurate as Bad Elf.

Once the day's photos have been suitably enhanced, named and organized, it's time to tie them to this detailed track. I'm still using Robogeo for this, but that's a 'ghost app,' no longer serviced. Baidarkabob tells me he's switched to Adobe Lightroom for this, and I'll probably

<sup>8</sup> Nothing wrong with using your camera's software to map photopoints, especially if there's just a few. In my work & play, I like to be able to 'backtrack' my entire walk with a gps track. Avenza's just one handy way to integrate that track with photopoints to 'tell a story.'



migrate eventually. [Here's a how-to](#) that looks useful. If you have access to Adobe Suite (and Arc stuff, below) through UAS, I recommend diving into these programs. Maybe you'll lose access on matriculation, but odds are you'll regain it, moving into careers with agencies or—as in my case—nonprofits.

Bad Elf and Garmin gpx tracks are usually exported as .gpx files, through cable or email. For me that requires translating to shapefile for use in ESRI's ArcGIS Pro. Lots of ways to do that.

• **export a route&pics map** Now we're getting into rather expensive and tech-heavy solutions. Map on right is an export from my *chilkat.aprx* project, with badelf track, hi-res named photopoints, and geo-units.

• **sweeping it together with Indesign** I rarely use Word because it sucks at page layout. And being a visually oriented human, I demand lots of integration between graphics, captions and text.

Route&pics map for our arrival on **MV LeConte** at **Wooshkaqanté, quarreling rocks (Lutak terminal)**

BTW, are you okay with commemorating a racist every time you reference our beloved ferry? [Joseph L-word](#) found "**Reconstruction intolerable. He referred to 'a carpet-bag governor, scalawag officials, and a negro legislature controlled by rascals' and stated that the 'sudden enfranchisement of the negro without qualification was the greatest political crime ever perpetrated by any people.'**"



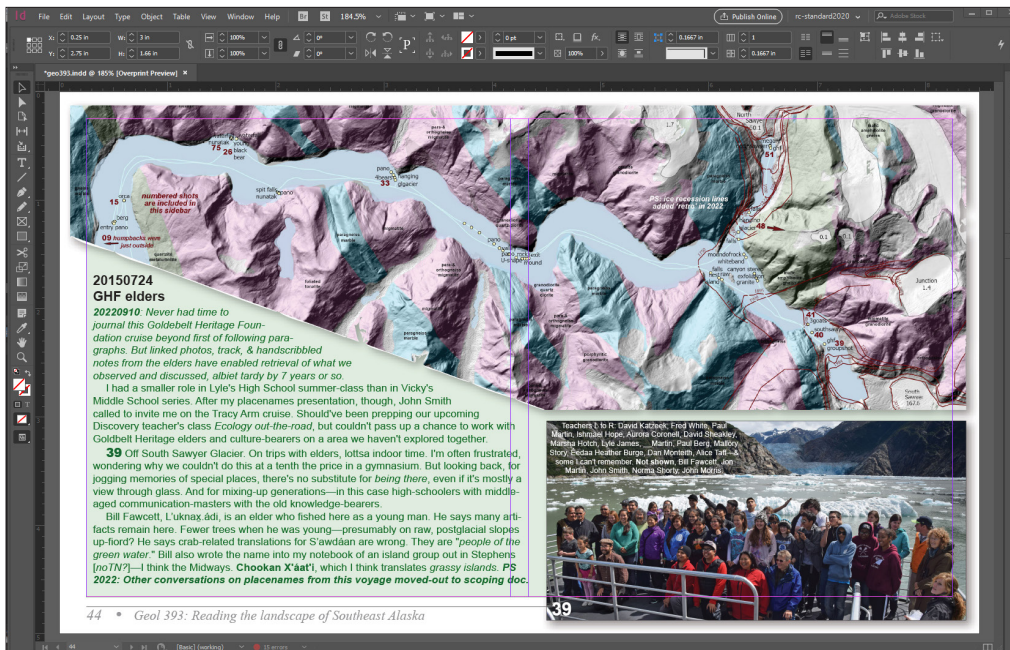
Top of stitch was correspondingly 'stepped' but I just cloned-in sky-blue to even it out.

2022

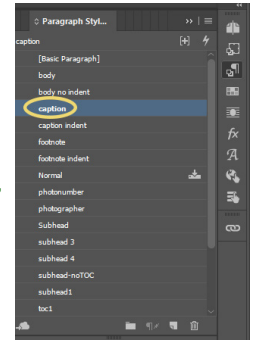
From our penultimate stop at 8.3 mile. 'Steps' across the bottom of this ~10-shot mosaic result from following the skyline with my Nikon P1000,

set to mid-zoom range—impolite to chop the heads off sacred mountains—sometimes handheld but usually panning from tripod. At 86MB, this composite

is high enough resolution to pick up mountain goats, 5 miles away across the river.



Left: sample Indesign page, from my last visit to Sit'ja.eeti aani, *handiwork of the glacier.* (Tracy Arm). Such excerpts and 'spin-off' addenda are carried into this Geo/393 scoping-&-journal as sidebars, segregated from regular text in green boxes, in this case [running for 4 pages](#). They're further distinguished from regular text by use of caption font. • Right: Green 7pt Arial is my caption font. Layout professionals recommend you choose a strongly differing font from your text (*body*, and *body-no-indent* here). I use not only a *sans-serif* to set apart from the text *serif*, but also a different color. Since most of my pictures—as a treehugging naturalist greenie—have lots of green in them, I use this green to further meld photos with the written word . . .



during and after our time together. Find a process that's so fun and rewarding that it *beckons*, not intrudes. Build and protect a legacy, for landscape-trackers still unborn.

*PS, post-course: I was thoroughly impressed by the technical mastery and content of your last-day presentations—and wish we could have had more interactions around that aspect of geologizing-documenting-communicating.*

*I've also been humbled by how much you're juggling, with multiclass, nonstop schedules. That doesn't leave time for much of the journaling work-flow outlined here. But I hope, at some less-accelerated time in your lives, you'll come back to these ideas and practises. We'd love to hear more from you about the evolution of journaling in your work and play.*

Imagine trying to lay out the above journal page in *Word*—you'd soon be screaming at your computer, which is a waste of time since computers can't hear. (hmmm, actually i guess they can, but let's not think about that . . .)

- **share it!** My article called [Field journaling as Raven goes global](#) concludes with some thoughts about sharing our experiences in nature, now that we don't sit round the fire much with our sister-&-fellow

gatherer-hunter-fishers. My old handwritten journals were ok for personal use but inconvenient to pass along to friends or colleagues.

For me, today, Indesign-to-PDF-to-website-upload (or simple email attachment for more directed communications) is a satisfying solution. I'll bet many of you can find more efficient and creative alternatives.

Cathy Connor and I hope you will think about this,