WHAT WOULD RAVEN SEE?

DRAFT

New and old ways of knowing: land and history of the Auk and Taku people

Richard Carstensen, Clay Good, Sanjay Pyare and Kathy Hocker

For Goldbelt Heritage Foundation

Spring, 2010

Adaa analg̲éin

Raven's way of studying the world

"The word we've always used in teaching and instructing our young people is attributed to Raven (Yéil). What the ancient teachers would say to their students was *adaa analg̲éin, adaa analg̲éin!* This means, to look at, to evaluate, to savor, to think it over, whether it's in the attainment of something or the fixing of something. You had to be able to make small little tests, to see if what you were thinking might work. Studying has always been an important part of our educational sytem.

Adaa analg̲éin: to pay attention, to be still, to be quiet, almost to the extent of developing a relationship with the subject of our thought."

David Katzeek
Shangukeidí Clan

Authors of this manual:

Richard Carstensen

A Tongass naturalist since 1977, Richard is co-author of 5 books on the nature of Southeast Alaska. In 1989 he co-founded Discovery Southeast, providing nature education to students throughout Juneau's public schools. With fellow naturalist Bob Christensen, Richard developed the ground-truthing and journaling protocol described in this document. Field tested from southern Prince of Wales Island to Yakutat, this process employs high-tech instruments, but at its core is *Adaa analg̲éin*: Raven's way of studying the world.

Clay Good

Clay Good grew up in Juneau, Alaska where he taught physical science, biology and ocean sciences until he retired from the Juneau school district in 2007. The ocean science academic teams he coached won the state title at the National Ocean Sciences Bowl 7 of his 9 years coaching. He was awarded the 2000 Teacher of the Year by the Northwest Aquatic and Marine Sciences association, as well as the 2007 National Association of Geoscience Teachers Outstanding Earth Sciences Teacher of the Year award for the Pacific Northwest. Besides working as a classroom and field instructor for various summer science academies in Southeast Alaska, Clay is also a curriculum consultant. He developed, and is teaching, an online course regarding culturally relevant geosciences for teachers in Alaska through the Alaska Staff Development Network and Alaska Pacific University.

Sanjay Pyare

Sanjay Pyare is a professor in the Environmental Science and Geography at the University of Alaska Southeast, Juneau, AK. He teaches and conducts training in biogeography, geographic information systems (GIS), and GPS. He has spent about the last 13 years throughout southeast Alaska, amongst bouts in Montana, Wyoming, and Nevada, conducting ecological field research on such subjects as fungal communities and old-growth forest condition; supporting conservation efforts like amphibian declines and wolf recovery (Yellowstone); and studying the migration and dispersal of many animal species. Recently at UAS, he helped develop the Southeast Alaska GIS Library, a public GIS resource, and co-founded the Alaska Coastal RainForest Center, which conducts research and outreach about temperate rainforest ecosystems. He has conducted numerous K-12 teacher training courses at UAS and as a former co-director and co-founder of the Great Basin Institute (based in Reno Nevada).

Katherine Hocker

Katherine Hocker grew up in Juneau. She studied biology at Harvard University and science illustration at the University of California. Now she works as a naturalist, teacher, and illustrator in Juneau. Katherine's work can be seen in books, on Alaska Folk Festival posters, and interpretive signs. She teaches courses on drawing as a way of observing and learning from nature, and sharing what we learn.

CONTENTS

Introduction

We feel honored to participate in this ground-breaking course on Traditional Ecological Knowledge (TEK) for high school students, sponsored by Goldbelt Heritage. So that the 2010 pilot session might lay a foundation upon which to build in subsequent years, we've created this "how-to" manual, blending cutting-edge technologies with time-tested field naturalists' skills, and sprinkled with wisdom from the elders. These are the tools and techniques that, in our respective careers, have proven most fruitful in deepening our sense of place. These skill sets have honed our understanding of natural processes, from the movement of crustal faults to the migrations of prehistoric peoples.

None of us–Pyare, Good, Hocker or Carstensen–is Alaska Native. But we respect the traditions and insights of cultures that co-evolved with the northern rain forest for centuries and millennia. We're inspired by the chance to intermingle our skills with those of elders and culture bearers, helping students to develop a relationship to place that has never before been possible in Southeast Alaska. It will tap the depths of traditional ecological knowledge, also grafting to these ancient roots the newer perspectives from satellites, repeat photography, and internet communications (e.g. blogging).

This educational philosophy–a 3-pronged curriculum integrating Nature, Culture and Communications, is most eloquently expressed by the Axe Handle Academy, first conceptualized in the 1980s by Ron and Suzanne Scollon, with Nora and Richard Dauenhauer (*www.ankn.uaf.edu/curriculum/axehandle/*). The Axe Handle philosophy was well ahead of its time–Alaska's home-grown manifesto on "place-based education," written long before anyone began to use that recently fashionable phrase. We think the coming Goldbelt Heritage class on TEK–and the associated ASDN teacher's workshop entitled *Connection: rooted in place, school and community*– will demonstrate that, by whatever name we might choose, Axe Handle's day has come.

Our manual begins with the basic technological tools commonly used by geologists, foresters, wildlife biologists, archeologists and naturalists. We describe the applications of GPS, cameras, and other measuring and recording devices. Next, we discuss the many ways in which data acquired through these tools can be compiled and synthesized. It's often during this more reflective stage that the real learning takes place–ideas emerge that would never have occurred to us in the distracting exertions of cross-country travel.

Last comes the sharing part. Explaining the "Communications" facet of the Axe Handle Curriculum, Richard Dauenhauer notes that it encompasses everything from traditional story-telling skills to blogging, and the ever-morphing Web.

Here's something to bear in mind as we wade into the nuts and bolts of 21st-Century nature observation, synthesis and reporting: Anything we write about GPS or photography or blogging today will seem almost childishly antiquated in the year 2020. The thing about the "cutting edge" is that it keeps slicing deeper–here today, somewhere else tomorrow. That's not a problem; we or our successors can update those parts of the manual as time goes by.

But there are more tenured components of this manual that will never fade with age. Stories of the

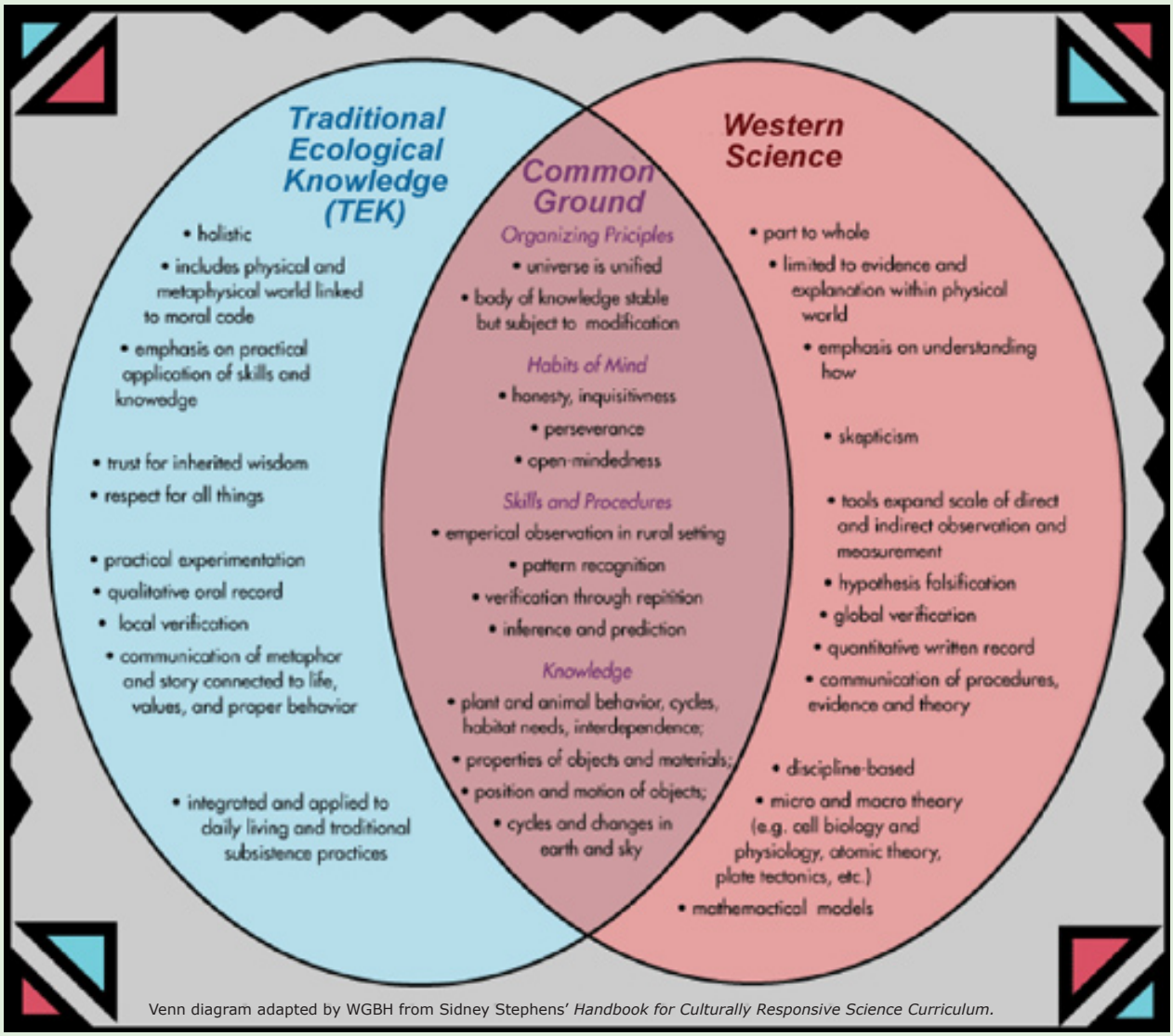
TRADITIONAL ECOLOGICAL KNOWLEDGE

TEK is defined as follows by the Convention on Biological Diversity, Article 8 (j):

"Traditional knowledge refers to the knowledge, innovations and practices of indigenous and local communities around the world. Developed from experience gained over the centuries and adapted to the local culture and environment, traditional knowledge is transmitted orally from generation to generation. It tends to be collectively owned and takes the form of stories, songs, folklore, proverbs, cultural values, beliefs, rituals, community laws, local language, and agricultural practices, including the development of plant species and animal breeds. Traditional knowledge is mainly of a practical nature, particularly in such fields as agriculture, fisheries, health, horticulture, and forestry."
www.ser.org/iprn/tek.asp

On the Alaska Native Knowledge Network website, anthropologist Tom Thornton adapts the definition of TEK to Tlingit country, as exemplified by the life and wisdom of Kaagwaantaan elder Herman Kitka:

"Tlingit traditional ecological knowledge (TEK) is the product of generations of learning and experience with the lands, waters, fish, plants, wildlife, and other natural resources of Southeast Alaska. As Sitka elder Herman Kitka Sr. shows, Tlingits were trained from an early age to be aware of and respect the community of living beings that surrounds them. This meant learning not only how to hunt, fish, gather and process key subsistence foods and other necessities, but also how to understand the behavior and roles of other species in the ecosystem, and how to successfully interact with them in sustainable ways. This knowledge was not gained in a classroom but largely passed down by elders through oral histories, songs, crafts, and practical training. With maturity, one's TEK continues to grow in unique ways through reflection and experience on the land."
ankn.uaf.edu/Resources/course/view.php?id=11



Venn diagram adapted by WGBH from Sidney Stephens' *Handbook for Culturally Responsive Science Curriculum.*

TEK AND SCIENCE

In 2009-2010, Clay Good piloted an on-line course for teachers called Explore Alaska! - Alaska Native and Western Perspectives on Earth's Systems. The essential question was:

How can digital resources and effective teaching methods be used to integrate Alaska Native ways of knowing and Western scientific methods in order to create greater understanding of, and interest in, geosciences for students?

Traditional Alaska Native knowledge has provided the information and technologies necessary for humans to survive and thrive in some of the harshest, most unforgiving environments on Earth. This collective wealth of knowledge has existed for centuries and has been transmitted traditionally by oration and stories, passed down from generation to generation.

Just as modern Alaska Native peoples have wisely included modern scientific knowledge and technologies into their cultures, modern scientists are wisely taking into account the wealth of knowledge and on-the-ground experience that Alaska Native peoples have regarding the natural history and phenomena of places under study.

elders are not so much "timeless" as *purified by time*– object lessons slowly winnowed to their essences, an oral survival of the fittest. Far from obsolescing, the elders' stories grow stronger and wiser in application to the changing world. They are the hearth, compared to the flying sparks of technological wizardry. Likewise, the core principles of good speaking, writing and illustrating cut across space and time. Shared by cultures throughout the world, these fundamentals of observation and communication will be the same in 2050 as they were in the time of Katlian or Shakespeare.

WAYS OF KNOWING

In recent years, there have been many attempts to explore the similarities and differences between Traditional Ecological Knowledge (TEK) and Western Science (WS), mostly in an attempt to reconcile these sometimes diverging world views, and to arrive at ways for each to respectfully inform the other.

Here, we introduce a third element to the dichotomy between WS and TEK–the discipline of Natural History (NH), as exemplified by naturalists such as John Muir. Over time, as western science has taken over the role of original research, naturalists have tended to move into the role of interpreters, synthesizing and communicating the findings of scientists to the public.

In the graphic above, we present the relationships between TEK, NH and WS as a tree. Position on this tree–crown vs roots, etc–is not intended to signify superiority of one over the other. But a progression over time is suggested. Our challenge is to be sure the roots of the tree don't wither as the branches proliferate.

Examining the attributes of these 3 approaches to knowledge, we suggest that old-style Natural History and TEK may be more closely related to each other than either is to Western Science. Today's naturalist may use GPS and digital photography, but philosophically, s/he may be closer to the root than the crown of the tree. The naturalist and the Tlingit hunter or spruce-root gatherer are generalists, whereas the scientist is increasingly specialized. Although the discipline of natural history is not bound to a life-encompassing moral code or spirituality, many individual naturalists are deeply spiritual. John Muir saw in nature the expression of God.

With science, the advancement of knowledge becomes more formalized. In its strictest definition, science involves hypothesis generation, followed by rigorous, quantitative experimentation. Because skepticism is at the core of this testing, science distances itself from the metaphysical (i.e. the untestable). Of course, individual scientists may be religious, but most would claim that their untestable beliefs are not permitted to bias their scientific objectivity.

In science, except for professional ethics, there is no right or wrong–only the incremental pursuit of truth, mostly through hypothesis falsification. Scientists don't hope to *arrive* at the ultimate Truth; they're more interested in chipping away at truth with a small "t."

GPS (Global Positioning System)

GPS has changed the way we place ourselves on the landscape, and how we share that information with others. Originally a military technology, GPS rapidly found applications in off-trail routefinding, surveying, anti-theft devices, restaurant searches, and bird migration tracking. Accuracy and affordability are constantly improving. For example, only in the past few years have GPS units been able to connect with satellites from beneath a dense forest canopy.

GPS units are not only becoming faster and more forest-ready, they keep adding new bells and whistles. For example, the Garmin Rino doubles as a radio for vocal communications with your field partner. More important, through those same radio signals it shows your partner's track and position on the map page, alongside your own. Anyone who's ever become separated from their partner in the dense Southeast rain forest can easily appreciate the utility of this feature.

But the availability of increasingly sophisticated navigational tools should never lull the backcountry traveler into a false sense of security. Just as students learn to multiply on paper before using calculators, it's best to understand basic map and compass work before progressing to GPS. For one thing, although basic GPS units are able to identify direction, they do this only when the user is in motion; they are much inferior to a simple, relatively glitch-proof compass in this regard.

For another thing, batteries go dead, and electronic devices malfunction. Murphy's Law says that the more expensive your gadget, the more remote the location in which it will chose to blink out. A GPS-enabled bushwacker without a back-up compass is like a stunt flier without a parachute. Appendix 1 has some basic tips on the use of map and compass.

GPS: nuts & bolts

This tutorial is written for the Garmin Etrex Venture HC. Slight differences may be noted in screen shots and menus between Etrex models. GPS units in the Goldbelt Heritage Foundation set have excellent satellite reception under canopy, but lack magnetic compass and barometric altimeter. We recommend using basic compass with declination adjustment (Appendix 1).

<u>Collecting GPS data:</u>

Power on

• Press and hold the power button to turn on the Etrex.

THE DOWNSIDE OF GADGETS

Sitka anthropologist Richard Nelson remembers that when the younger Inuit first began to use compasses, the elders were worried. The compass, they claimed, was weakening the peoples' intimacy with their treeless northern landscape. No longer could hunters orient themselves by the concordance of subtle natural signs, such as the way snow is deposited in the prevailing winds. The compass was, in a sense, weakening the peoples' relationship with their environment.

Today the compass–once "cutting edge"–is now increasingly left behind by outdoorspeople armed with more advanced navigational tools. But does ever-advancing technology place even more buffers between the navigator and the terrain?

We might bear this cautionary note in mind as we explore the use of technology in this course. Few would suggest we abandon useful tools such as compasses, or their technological descendants–GPS units. But we should remember Raven's perspective. Do our tools sharpen or dull our perceptions?

The 3 pages on the Etrex HC: main menu; map, and compass. On your map page, note that roads are not included for the Juneau area–only coastlines.

The page button

• First, cycle through the above 3 pages on the Etrex by pressing the page button. In the following instructions, you will sometimes get deep into nested menus. To quit after making a menu selection, or simply to escape if you get into the wrong menu, just hit the page button.

Clearing previous data

• With these shared GPS units, it's a good practise to always clear off existing waypoints and tracks from past users. Same goes at the end of a session; don't leave a cluttered unit for the next person.

• To clear waypoints: select *main menu>find> waypoints.* Now, press the menu button and scroll down to *delete*. Select *all symbols,* and confirm *yes*.

• To clear tracks: select *main menu>tracks> clear.* Confirm *yes.*

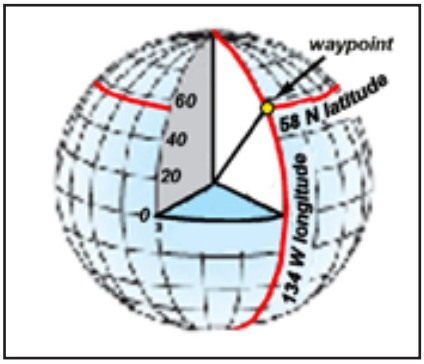
Waypoint Formats

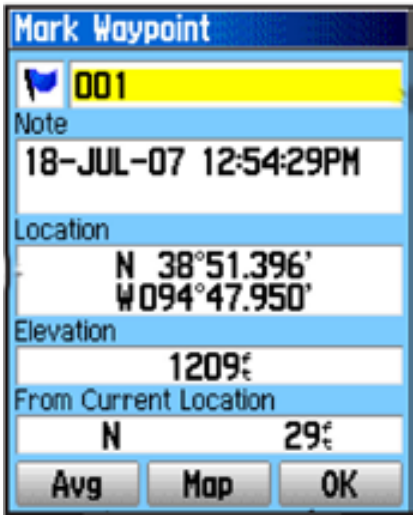
• Waypoints are point locations, plotted in longitude ("X") and latitude ("Y") coordinates. Juneau is at roughly 58°N latitude and -134°W longitude.

• Coordinate format can be changed as follows: *main menu>setup>units>position format*. We recommend decimal degrees hddd.dddddd.

Recording and labeling waypoints

• Press in on the enter/rocker button and hold for 2 seconds to capture current location.





• Stay with the default number–001 in this illustration. If your waypoint is associated with a photograph, remember to write down the waypoint and a note about the photo in your field notebook. (This label –yellow space–can be changed to a descriptive word using on-screen keyboard.)

• Select OK to store waypoint information.

Accessing stored waypoint information

• Select *find>waypoints.*

• Select desired waypoint on list.

Track formats

• Tracks function like "cookie crumb" trails.

• Track crumbs can be dropped at specific time OR distance intervals.

• To specify track formats and intervals, select *main menu>tracks>setup*. Then specify record method & interval.

To Turn Tracking on/off

• Select *main menu>tracks>on or off.*

To Save or Clear Tracks in Memory

• Select *main menu>tracks>clear.*

<u>Navigating with GPS</u>

Find & Goto

• Select *main menu>find> waypoints.* Select a waypoint on list, and check *Goto*.

• On the map page, a purple line will appear connecting your position to the selected waypoint. Press the page button to bring up the compass page.

• Walk in the direction of the red arrow on the compass. This is a geographic digital compass and not a magnetic digital compass; thus you must be actively moving for the compass be useful.

• To get out of navigation mode (red arrow), hit the menu button while on the compass page, and select *stop navigation*. The arrow will disappear

Map pointer & compass

• Flip to the map page. Move the rocker key sideways in any direction. A white arrow will appear. Moving the rocker again will steer this arrow

• Note that as you move, the bearing and distance to the waypoint from your location (black triangle) changes

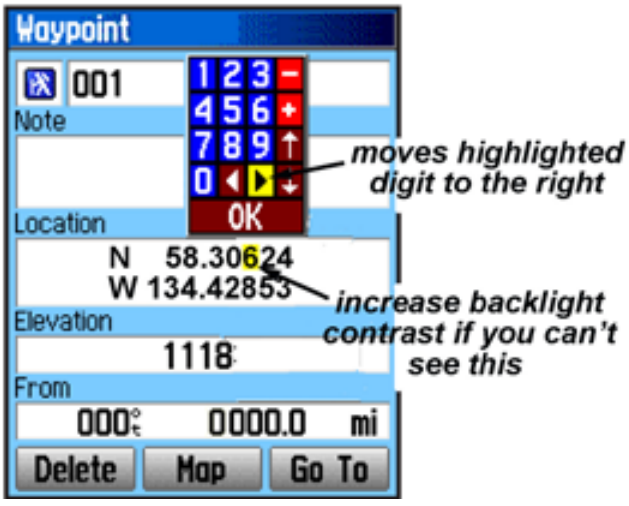
• Use a magnetic compass to orient to the bearing towards the waypoint; recheck the bearing periodically on the GPS and adjust accordingly.

Tracks

• You can also navigate on the map page using previous track logs as approximate guides and comparing these to your location (black triangle) and your current track log.

<u>Adding Coordinates into a GPS</u>

• Before doing these steps, "clean" up any saved waypoints, tracks, and clear the track log. Following



APPROPRIATE TECHNOLOGY

There are many approaches to the question of appropriate technology. Discovery Southeast naturalists have long debated appropriate technology in regards to place-based education. We have limited time to spend with students. In our Nature Studies program (grades 3 through 5), if we have a field hour with kids, we want to spend it grubbing in the soil or listening to birds, not fiddling with some distracting gadget.

In the older grades, technology has obvious benefits. In the realm of education, one could define appropriate technology as that which deepens our appreciation and understanding of the natural world. In contrast, inappropriate technology insulates and distracts us from the world, promoting disinterest or fear or exploitive relationships with nature.

In these terms, a GPS is pretty nifty technology. Not only does it precisely situate us on the earth, it can't be used inside! The GPS *draws us outdoors*. Unlike an Ipod, say, you're unlikely to be distracted by its alluring indoor apps.

Not to put-down Ipods; naturalists and ornithologists use them to identify bird song in the field. Nor is there anything wrong with Ipod games or music; they just don't tend to advance our connection to the earth. In the context of place-based education, appropriate technology obviously depends upon the user as much as the tool.

are 2 ways to transfer locations to a GPS:

1) Manual entry: enter coordinates directly into a GPS. Record a waypoint (see above) and manually change the coordinates. In the waypoint window, select waypoint 001, scroll down to the lat/long field and select it. A numeric keypad will appear.

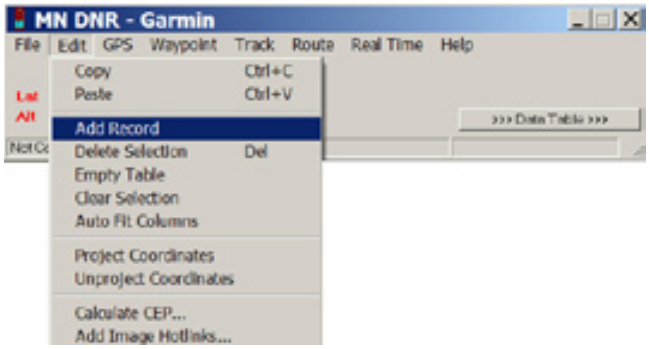
• It takes awhile to get the hang of this keypad. Moving the left & right arrows moves the yellow highlight marker through the digits. (You may have to increase the backlight contrast to see which digit is selected,) Enter the following coordinates for waypoints 1-5.

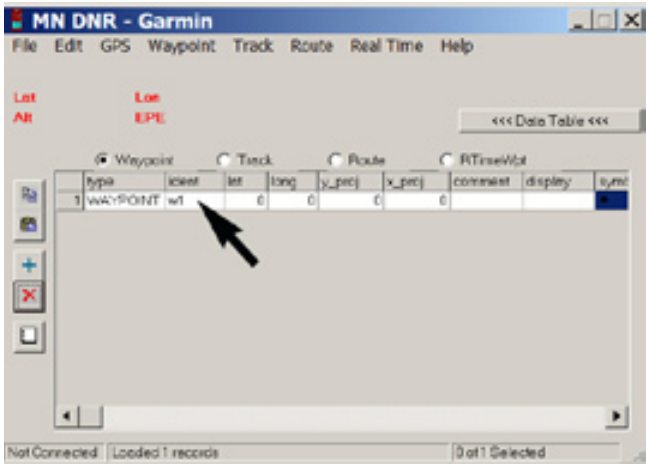
Label	Latitude	Longitude
1	58.3856	-134.6415
2	58.3824	-134.6394
3	58.3891	-134.641
4	58.3861	-134.6416
5	58.3838	-134.6406

2) GPS Software: use a GPS software program (DNR Garmin)[1] to enter coordinates and upload these to a GPS

• Start DNR Garmin: *start > programs > GIS, GPS, and related > DNRGarmin*

1 This is a free program from the Minnesota DNR: *www.dnr.state.mn.us/mis/gis/tools/arcview/extensions/DNRGarmin/DNRGarmin.html*





• Add a record.
• Click the "waypoint" box.
• Double click the empty *ident* cell and add the first label below; then add latitude and longitude.

Label	Latitude	Longitude
6	58.3866	-134.6420
7	58.3873	-134.6465
8	58.3848	-134.646
9	58.3828	-134.6384
10	58.3907	-134.6468

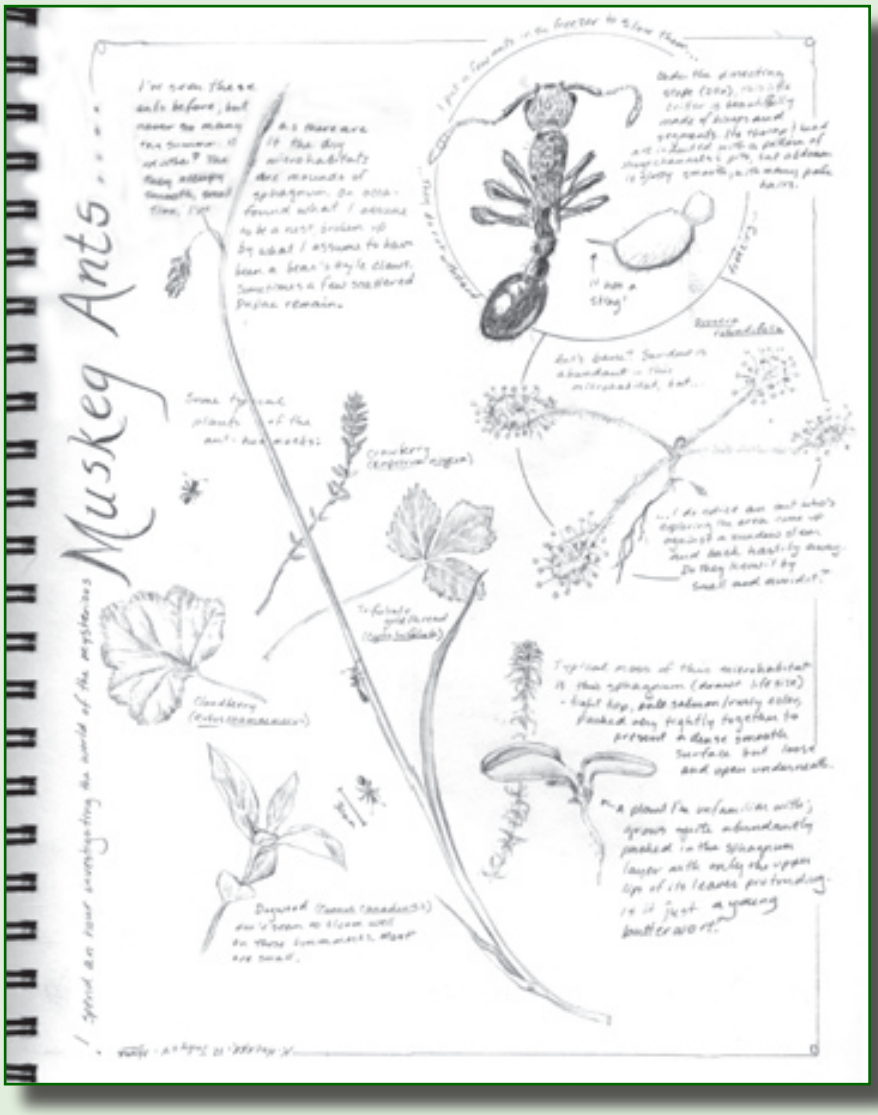
• Repeat for remaining 4 waypoints.
• Obtain a GPS unit, hook up the cable to the GPS and the serial port in the back of the machine. Turn it on.
• Make sure DNR Garmin can "see" the GPS unit – the GPS model type (Garmin Etrex) should appear in bold near the top of the DNR Garmin window.
• Upload waypoints 6-10 to the GPS by selecting "Upload" under the Waypoint dropdown bar.

3) Other methods: There are other, more technical, ways to upload coordinates to a GPS. DNR Garmin allows you to upload a pre-existing table created in Microsoft Excel. And there are several programs in addition to DNR Garmin that interface with ArcMap.

In this section we've covered the field use of GPS units, and introduced one way to interface between GPS and the computer. Below, in ***From GPS to map****, we'll explain several options for transfering GPS coordinates onto maps or aerial photos.*

DRAWING AS A WAY OF SEEING

Juneau's premier nature illustrator is Kathy Hocker, a naturalist who draws to observe, to understand, and to share what she learns. Here are some tips, distilled from Kathy's career in scientific illustration, and from teaching classes in nature drawing and journaling:



"Drawings can record information that words cannot—for example, it's much easier to show the shape of a fish's fin or the interior structure of a flower than it is to describe these things in words. The process of drawing from observation can help you observe your subject more thoroughly; you may notice things about it that you would not otherwise have seen. The process of drawing and taking notes as you draw engages your whole mind, allowing you to use all of the potential of your intelligence to perceive, process, and absorb.

Why not use photos? Photographs are very useful tools, but they have definite limitations. If you take a photograph of a plant, you will have an image that records everything visible about that plant from that angle. In a way, that can be both more information and less information than you might need for your study. More, because the photo will show so much detail that it can be overwhelming; less because the photo may not show everything you want to remember, such as the undersides of leaves, the appearance of different stages of blooming, or the pattern of roots. In a drawing, you can emphasize certain features, and take notes about others, building a more complete picture than would be possible with a photograph. . .

'Look at your subject of study from the bottom up, and from the inside out; examine it in great detail, meditate on it.' -Tlingit Elder David Katzeek

As you look, try to let go of the idea of a name or classification. Allow yourself to be still, and focus all of your attention on your subject. What do your senses tell you about this thing, be it a plant, stone, animal, or landform? What shapes do you see? What colors? Textures? How does it feel to the touch?

Don't rush into trying to capture your subject on paper. The more you look at (and touch) something, the more that thing will enter your consciousness. The more firmly seated it is in your consciousness, the truer your drawing will be. Look at it from different angles. Meditate on it. Let it tell you about itself.

What should a drawing in a science notebook look like? That depends on the purpose of the drawing. If you are studying a habitat and want to make a record of the types of plants that grow there, your drawings may be quick sketches of leaves for identification later. If you're curious about different seed types, you might sketch a series of different seeds from different plants to compare side-by-side. A study of a particular plant species might warrant a more technical drawing, showing the plant's typical growth form, leaf shape, root style, buds, flowers, fruit, etc.

Remember that drawing in science is not the same as creating art. While a scientific drawing may certainly have beauty in and of itself, its primary purpose is not to hang on a wall but to help you observe, learn, and remember. It's far more important that the drawings truly reflect what you observe than that they look "pretty." So don't worry about trying to make your drawings look like art—that's not their purpose!

As you draw, take notes. What do you notice about your subject as you are observing and drawing? Some of these notes might even stand in for things you can't draw or don't want to clutter your drawing with (for example, you could note that a plant's stem is densely hairy, or write down the measurements of a bird's wing, note the

color and texture of the soil a plant is growing in, or list the species of trees that are growing on a glacial landform that you're sketching).

Questions are the soul of science. The process always begins with a question, whether it's as specific as "I wonder which insects pollinate fireweed flowers?" or as general as "I wonder what this plant can tell me about itself?"

In Tlingit tradition, it is extremely important to respect ourselves and to respect the world around us. This applies to science as it does to other aspects of life. As you draw and write in your science notebook, respect yourself by taking the time and making the effort to allow the intelligence that is inside you to flourish: observe carefully, think with your whole mind, write down your thoughts faithfully.

In Tlingit tradition, when a plant or animal is taken for carving, food, or other purpose, the person who collects it speaks to it, acknowledging its life. S/he explains why this thing is being taken, and the good that will come of it. This kind of acknowledgement is a good practice. It frames your relationship with what you're studying, begins the process of observation, and cements respect."

Katherine Hocker, June 2008

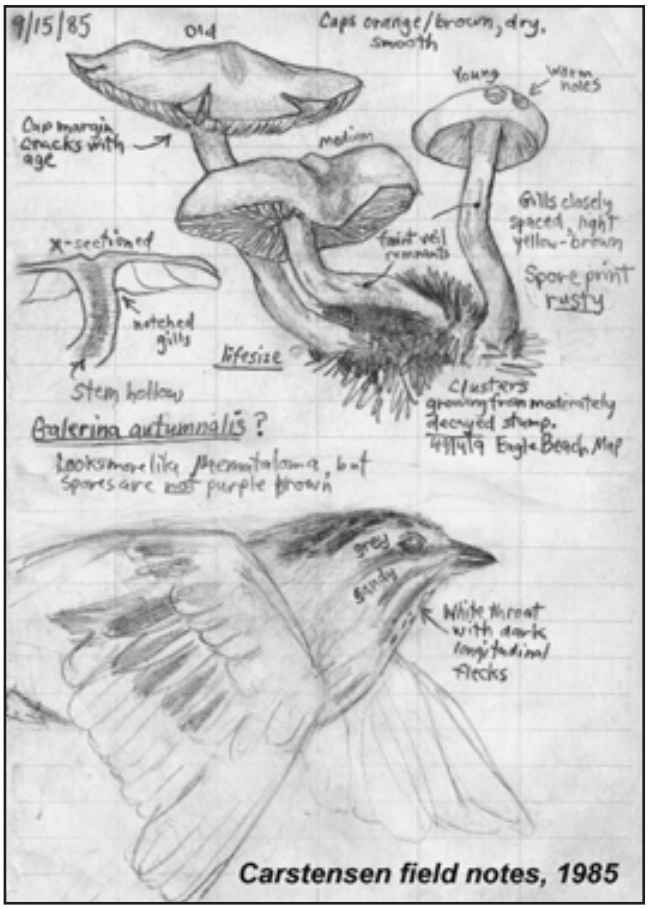
The field notebook

Even if electronic technology weren't so fallible, we'd still be fans of good, old-fashioned paper and pencil. For some naturalists, the simple field notebook is far more than a fall-back tool for when the gadgets misfunction; it's a primary way of relating to nature, in the tradition of naturalists reaching back as far as writing itself.

Formats for written or sketched field observations are as variable as the needs and personalities of each naturalist. One of us (Carstensen) habitually tucks a folded 4x6 notecard and pencil into a shirt pocket whenever heading outdoors. Shorthand notes and simple sketch maps on this card later serve as memory-joggers during the evening's digital journaling. The card is usually thrown away after such transferal.

But Juneau's acknowledged master of the field journal is naturalist Kathy Hocker. The accompanying sidebar contains a page from one of her many journals, as well as tips to get you started. For Kathy, the journal is not a disposable "placeholder," subsidiary to the typed and photo-illustrated final product. Instead, it's a stand-alone reference, carefully labelled and filed.

We each evolve our own way of recording the field experience. In this course, you'll have an opportunity to dabble in broad range of field and lab methods. One advantage of the Hocker method described in the sidebar is that you do more of the contemplative, synthetic part right out in the field. Questions that arise can sometimes be answered on site, simply by looking closer, digging a hole, turning a leaf over. In electronic journaling, described below, you're back indoors before the ruminating phase, and may have to wait until your next field trip to address those types of questions.



Page from Carstensen field notes. The lower sketch was from a dead Lincoln's sparrow. Such finds are wonderful opportunities to make detailed close-ups, and to examine features such as feather tracts, not even visible through a telephoto lens.

Your field notebook–or a simple notecard if that works better for you–can also serve as the place to record your waypoint and photo numbers, as explained in the preceding and following sections on *GPS, Digital camera*, etc.

The digital camera

Like GPS, and over about the same time span, digital photography has exploded in popularity. It's hard to believe that only a decade ago, photography meant film. Few suspected in 1999 that Kodachrome would soon seem as antiquated as Civil War tintypes. When Discovery Southeast naturalist Steve Merli brought in

View of Auke Rec, the old village site (brushy foreground) and Point Louisa from the top of a spruce tree behind the Raven totem. To capture a very wide field of view, a series of vertical-format pictures were taken, working from left to right. To create a panorama, "stitching" programs must have at least 20 percent overlap in coverage. The result is less distorted than if a fisheye lense were used.

a 35-mm slide projector to Glacier Valley Elementary recently, his students were fascinated; many had never before seen light passed through film transparencies.

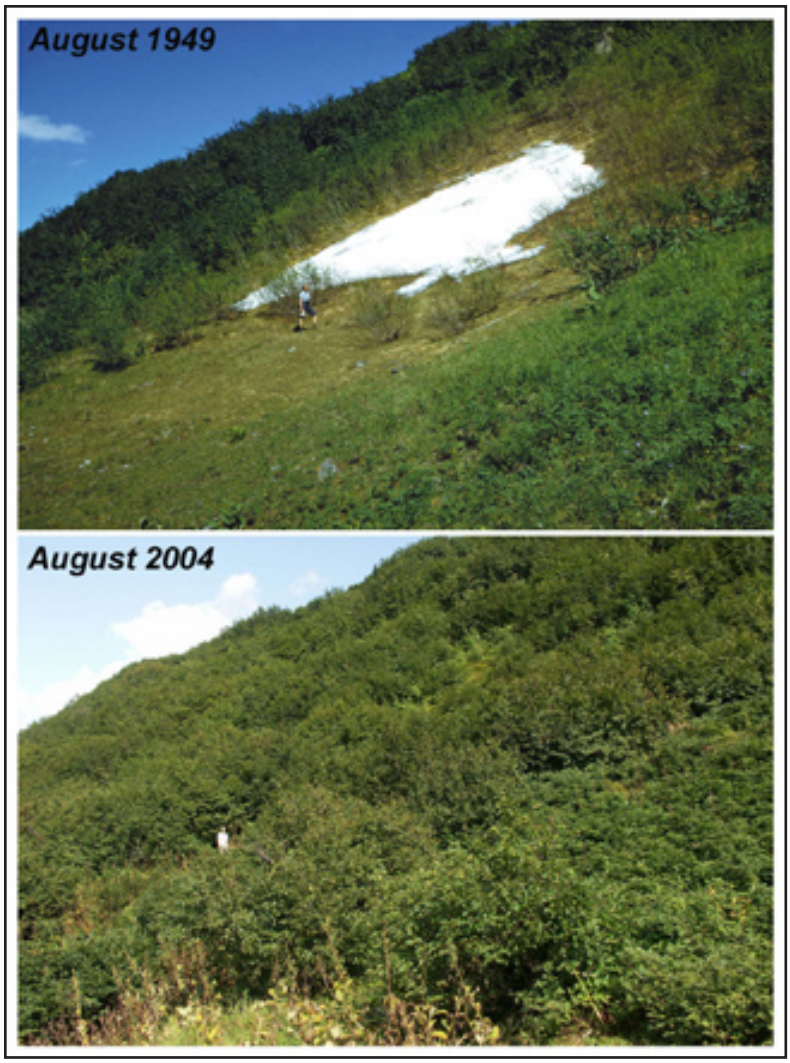
Any camera–even the cheap ones in cell phones with their tiny lenses–can be used to document your field outing. As Kathy Hocker noted earlier in reference to science drawing, the goal is understanding and communication, not to create a work of art.

That said, there's no reason an illustrative photo or drawing *shouldn't* be beautiful, and you'll be more successful in communicating if it is. Common mistakes in field photography include poor focus, and careless framing.

Even with the more expensive, image-stabilized digital cameras, taking a tack-sharp hand-held photo in the dim light of the forest understory can be challenging. Serious photographers continue to pack tripods to get vibration-free photos (and also to have more time to contemplate their framing). A load-lightening and less time-consuming option is to brace the camera against a tree whenever your meter indicates you're not getting enough light. The rule of thumb is that your photo speed should be at least the inverse of your lens setting. For example, with a 50 millimeter lens, you should shoot at 1/50 second or faster. If you can't, brace your shot.

Zoom lenses aid in framing just the portion of a scene you need to document your intended subject or phenomenon. Professional photographers sometimes spend as much time framing their image as Kathy Hocker does observing and sketching. Some telephoto zooms now magnify as much as 20 times over their wide-angle setting. These digital cameras make wildlife photography much easier than in the old days of gigantic lenses for film cameras that could only be used with massive tripods for stabilization.

At the other extreme from telephoto settings, consider using one of the automated panorama stitching programs to capture scenes too broad or tall for your widest-angle lens setting. Examples are above, and in the sidebar on journaling. All you have to do is swing the camera from left to right, making sure



Above: Snowpatch on the Mount Roberts Trail, below the cross. Taken by Professor Donald Lawrence, a pioneer in Alaskan succession research. Don's wife Lib stood at the base of a snow patch in 1949. Even in this end-of-summer shot, the Sitka alders surrounding the snow are barely leafed out. Only a few weeks earlier they were buried. The low turf downslope from Lib was likewise covered by snow until mid summer.

Plant growth is much slower at 2000 feet than down at sea level. Still, this replacement of subalpine meadow by brush constitutes an important change for wildlife.

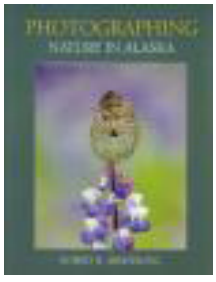
Below: Repeat photo by Richard Carstensen. I'd have been unable to see Bob Armstrong, had he stood in Lib's 1949 position. So he moved about 20 feet to the left.

I first retook this scene back in 1989 at Don's request. Alder advanced as much in the 15 years between 1989 and 2004 as in the previous 40-year interval between 1949 and 89. That suggests an acceleration of brush invasion, possibly in response to accelerating climate change.

that each photo overlaps at least 20% with the adjacent ones. The program will automatically search for that area of overlap, and stitch the series seamlessly together.

Almost everything an Alaskan nature photographer needs to know is covered in Robert Armstrong's new book, *Photographing nature in Alaska*, 2010. It makes great reading too, because it's not just a technical book; you learn a lot about local natural history along the way.

But with any tool, it pays to step back from our love-affair with technology and ask "What would Raven think about this toy?" Or: "Would an elder think I'm missing something important here, *because* of my tools?" Imagine yourself a raven, looking down from high in the canopy, chuckling at the photographer peering myopically through the lens, surrounded by unseen nature.



Repeat photography

The world is ceaselessly changing. One of the most valuable questions you can ask yourself on a field outing is: "What did this place look like 100 years ago; 10,000 years ago?"

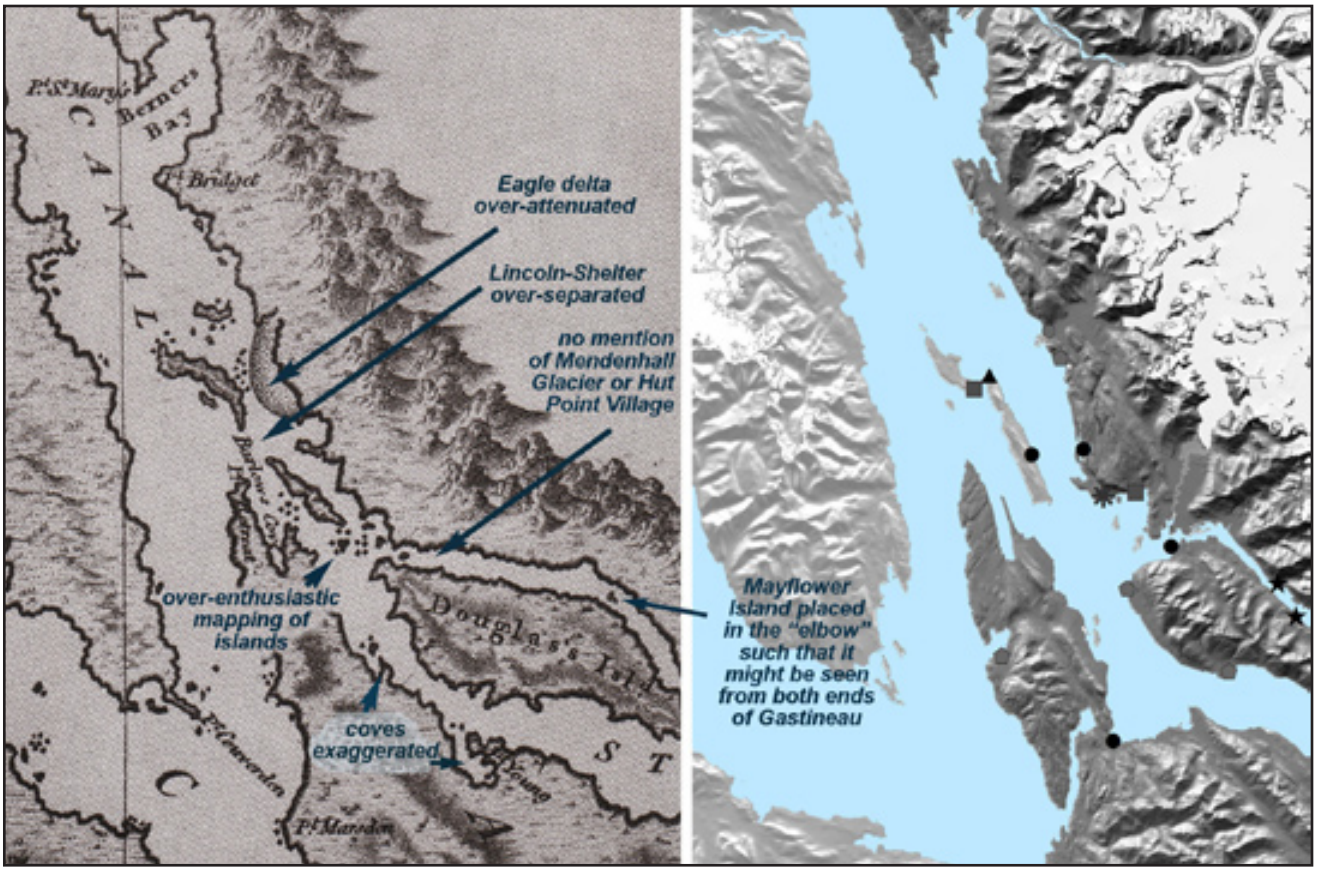
And one of the best answers, at least to the first question, comes from the attempt to relocate the sites of historical photos, and retake them. In this course we'll practice repeat photography, to see what it reveals about change at cultural sites.

Voice notes

Not only cameras but many other digital devices–Iphones, PDAs, etc–now double as audio recorders. Narrating your field observations into a voice recorder has its pros and cons.

On the plus side, narration vastly speeds up the notetaking process in the field. This can be especially helpful if you're travelling with others, and don't want to make everyone wait while you stop to scribble; instead, you narrate "on the fly," without breaking stride in your bushwack.

On the minus side, field time saved by narrating can mean hours of follow-up back in camp, or at your computer, listening to, transcribing and cataloguing the recordings. Often, the choice of whether or not to narrate field notes comes down to how much we value that field time. When we're in remote regions of the Tongass–places we're unlikely ever to revisit–every minute is precious. In those



Left: First detailed map of SE AK in 1794, by the Vancouver expedition. • **Right**: Comparison with modern hillshade map. Symbols mark Auk Kwáan cultural sites. Close examination reveals many inaccuracies in the 1794 map–several indicated in the blue annotations. But to appreciate the achievement of this map, consider that previous charts showed SE AK as a straight shoreline. Until Vancouver, Europeans didn't even know that Baranof and Chichagof were islands!

But obviously, the Tlingit people did. How would an Auk elder have mapped the archipelago? For insight, see the following map by Chilkat chief Kohklux.

conditions, a voice recording helps to maximize our field efficiency, making room for more tree coring, stream-flow measurements, and botanizing.

Virtually any voice recorder is adequate for making field notes that will be erased after recording. But in this course, we may have occasion to record interviews that will become priceless treasures. The voice of an elder deserves archival quality. For that purpose, there are lightweight, field-worthy professional-level digital recorders such as the Zoom H2.

Map making: the Raven's-eye view

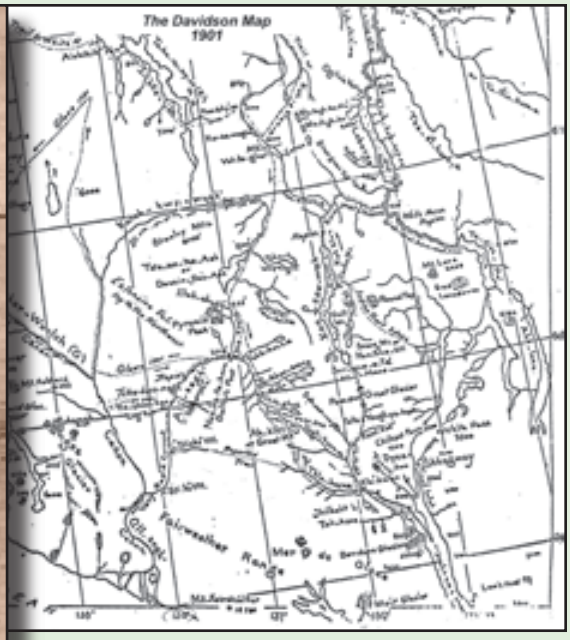
Most good naturalists and field scientists are proficient map makers. Once, this entailed years of training, learning to locate lakes, rivers, summits and submarine bottom contours on paper using plane tables, compasses, theodolites, sextants and lead lines. Today, map-making more often means *assembling* diverse elements developed and placed into the public domain by countless individuals and agencies: a hillshade for example (right-side map, above), plus maybe a streams layer, and perhaps a "dot file" representing eagle nests.

Typically, the maker of modern map might add to such pre-existing layers only a small amount of original data–for example, a color-coded GPS track distinguishing perennial from ephemeral bear trails. Few modern naturalists or scientists make maps completely from scratch, as did the cartographers in the command of Captain George Vancouver (left-side map above).

One of the first things to consider in the making of a map is the matter of scale. Do you want to show a large area, as in the examples above, or a smaller area, such as the immediate surroundings of a school?[1]

In map-making, as in Kathy Hocker-style field sketching, more information is not always better; it

1 Even experienced map users often confuse the terms "large scale" and "small scale." Think of it this way; on a large-scale map, *things appear larger.* Therefore, a large-scale map tends to show a smaller area. Pretty counterintuitive, eh? In writing and conversation, it's simplest to avoid these terms altogether, replacing them with more intuitively obvious terms like "coarse scale," "fine scale," etc.



KOHKLUX AND DAVIDSON

The earliest known map made by a Southeast Native was drawn by Chilkat chief Kohklux for George Davidson, a visiting scientist, in 1852. Kohklux had repeatedly travelled deep into the Yukon on trading ventures from the head of Lynn Canal. Although Kohklux and his two wives had never used paper or pencil, they created an exquisitely detailed sketch map, completely from memory. It took several days, detailing the routes to and from Fort Selkirk. Annotations were by Davidson, from the names given by Kohklux.

Nearly half a century later, Davidson completed the map above, including latitude and longitude lines, but employing many of the names and geography provided by Kohklux. Meanwhile, by the time the more geographically inclusive Davidson map was published, Kohklux's original had vanished.

In 1984, the Kohklux Map was relocated by Yukon archivist in California's Bancroft Library. It offers our best insight into the intimacy of geographical knowledge in the days before aerial photography and GPS-based surveys. Like the Inuit described by Richard Nelson, the Chilkat people navigated hundreds of miles without compass, tuned to the movements of sun and stars.

can clutter your message. Let's say you want to make a map of Gold Creek watershed that shows modern versus historical trails and mining roads. If you were to superimpose those features on a USGS topographic map, with its hundreds of place names, contour lines, etc, your map would be distracting for a viewer who is simply trying to compare the old and new trails. Better to use an unadorned hillshade base (example, upper right), and limit your place name labels to those most appropriate for orientation.

In this course, our source for aerial photographs, hillshades, and other mapping base layers will be the related programs Google Earth, and Google Maps.[2]

Google Earth operates through a free program that you must download to your computer before viewing. Every year, it adds new features, including many of the capabilities once available only to users of advanced GIS programs, described below. From our perspective in this class, the biggest breakthrough is the ability to directly download your GPS coordinates onto the Google Earth map or air photo. (This was formerly possible only in more expensive versions.) The following section, *From GPS to map*, explains this process.

2 See Appendix 5 for other on-line sources such as *alaskamapped.org*

In Google Earth version 5, you can attach a USB cable to your GPS unit and directly download waypoints. You can also "tilt" your view, from the default vertical perspective, to achieve an oblique perspective from any angle or bearing.

Google Earth is copyrighted but under public fair use laws, you may use exported Google Earth maps if you provide credit to Google. Google credit may be provided directly adjacent to the content, as shown in the credits to this image.

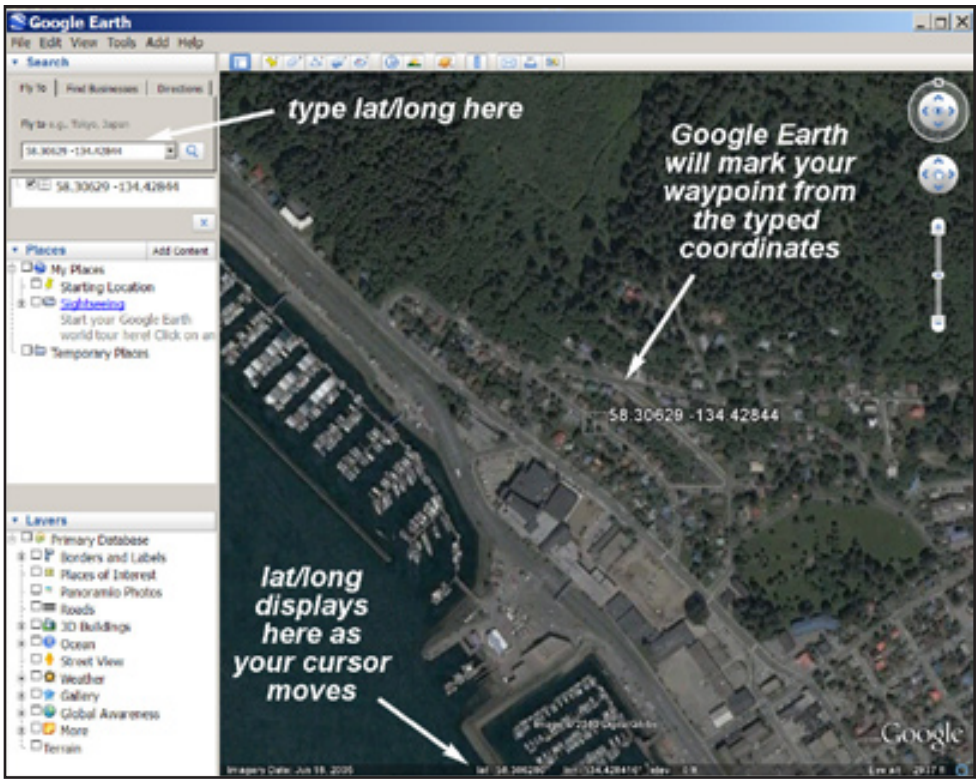


image from Google Earth

From GPS to map

In the introductory lessons on GPS, we explained the field operations of the Garmen Etrex. Here, we move on to several ways in which GPS waypoints and tracks can be used with on-line maps. This process is vastly easier than the arcane methods of plotting a known latitude & longitude against the coordinate ticks on the margins of a paper topographic map.

First it's important to recognise the different formats, or "units" for displaying latitude and longitude. They're refered to as:

decimal degrees (hddd.ddddd°)
degrees, decimal minutes (hddd°.mm.mmm')
degrees, minutes, seconds (hddd°.mm'ss.s")

The simplest of these lat/long units are decimal degrees. Let's start by standardizing that format on both your GPS unit, and in Google Earth.

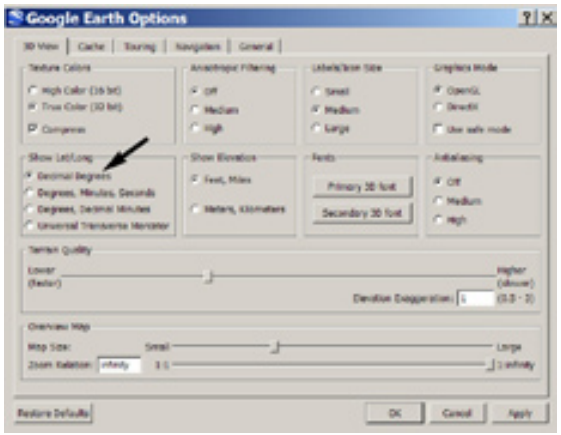
From the Google Earth header, pull down *tools>options*. You'll open this screen. In the *3D view* tab, check the radio button for decimal degrees.

Closing that window and returning to the map view, check out the lat/long display at the bottom of the screen, to see if the coordinates are now in decimal degree units. Move your cursor around over the map and watch the numbers change accordingly. If you wanted to, you could move your cursor in this manner to exactly the position indicated on your GPS, but that's pretty tedious. We'll use a simpler method.

First, be sure your Garmin coordinates are also displayed in decimal degrees. Go to the setup menu, under units, and check hddd.ddddd°.

Now, on your GPS, open the page for the waypoint of your choice. The above example was taken in downtown Juneau. Type the waypoint coordinates shown on your Etrex into the *fly to* box, upper left corner of the Google Earth window. (Here's where the decimal degrees format makes things simpler than messing with minutes and seconds.) Leave a space between the latitude and longitude, and place a minus sign in front of the longitude (if you forget, you'll fly to the opposite side of the world!)

Hit *begin search* (magnifier icon). A crosshair will appear over your specified coordinates, and Google Earth zooms in on that location.



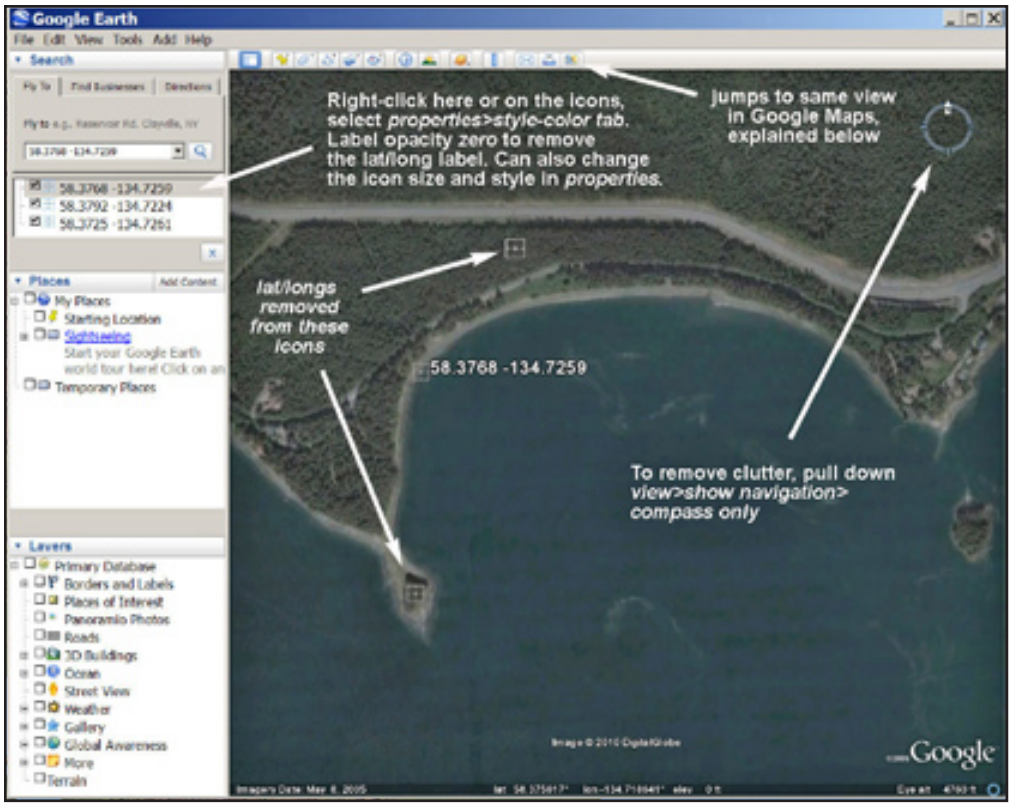
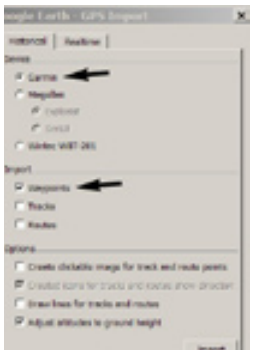


image from Google Earth

The default waypoint icon in Google Earth is a crosshair box with lat/long label. The *edit placemark* windows on next page allow you to customize this icon, before export to Photoshop.

That's the manual way to enter your GPS locations onto Google Earth. It's the simplest procedure if you only have a handful of waypoints. But imagine coming back from a serious field trip with 50 waypoints–pretty daunting! Also, when typing waypoints it's easy to enter a mistaken number, and the point can end up miles from the actual location.



But Google Earth version 5 offers a better solution. Attach a download cable to your Garmin Etrex[1] and connect the other end to your computer. On the Google Earth header, pull down *tools>GPS*. You'll get this import window. Check the radio buttons for Garmin and waypoints. (Uncheck tracks and routes.)

When you next click import, Google Earth pulls the waypoints off your Etrex and displays them in the same manner as when you typed them. The only difference is that they're marked with your Garmin-assigned numbers, rather than the lat/long.

Here's where a GPS housekeeping tip is in order. The preceding command will pull off ALL of the waypoints from your unit, whether you need them or not. Some folks who never have occasion to download waypoints accumulate huge collections on their GPS–trail destinations, favorite fishing holes, etc. This gets to be quite a clutter on the Google Earth map page, forcing you to selectively delete the unneeded waypoints from the GE page every time you download.

So, for our purposes, with these shared Etrexes, let's get into the habit of always deleting waypoints and tracks after they've been downloaded, to keep them clean for the next user.[2]

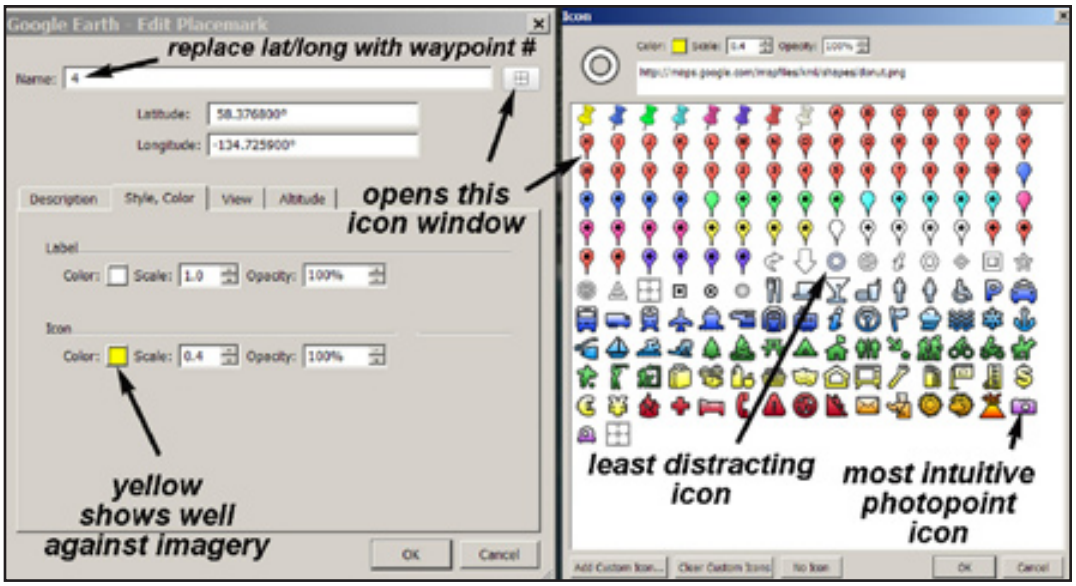
Linking photos to waypoints

On each of our field trips, we'll be asking you to take several documentary photos at GPSed locations, which will ultimately end up in your journal. Before or after taking the photo, collect a waypoint on that site. In your field notebook, or notecard, or noted orally onto your camera (if you're confident enough of that technology!) record something like "totem pole shot, waypoint 7."

Back in the computer lab, you'll create a map of the field outing in Google Earth, with several numbered waypoints corresponding to your documentary photos. The challenge is in setting up the Google Earth map window so that it shows only the photo-points and aerial imagery you want to convey, with a minimum of distracting information.

1 Earlier Garmin cables had a serial port connection at the computer end. More recent models use a USB connection.

2 On your personal GPS, you can keep your track and waypoint collection tidy in the same way. Rather than storing everything on the GPS unit, download it into Google Earth, and save the tracks and waypoints as kml files, explained below..



Options for cleaning up the Google Earth window prior to export.

From Google Earth to Photoshop

Google Earth's default waypoint icon is a crosshair box, accompanied by that point's latitude and longitude in large font (if you typed it) or Garmin waypoint number (if you cable-downloaded it). The lat/long label is needless clutter for our purposes.

But it's easy to change that. Right-click on the icon and select *properties>edit style*. In the topmost *name* box of the *edit placemark* window, replace the unweildy lat/long number to a simple one-digit waypoint number from your GPS, that you can later reference in your journal.

Note also that you can change the icon itself, to something more discrete. Air photos provide a bounty of information about terrain, forest type, etc, and we don't want to obscure this detail with an obnoxiously large icon.

When you've cleaned up the Google Earth window, and all your waypoints are marked and numbered, frame the view and export it to jpg format by pulling down *file>save>save image*. Navigate to your journal folder, and put the map in the same subfolder as your photos from that day.

The simplified scene after export to Photoshop.

image from Google Earth

The UAS computers run Photoshop, an image-processing program. This tutorial is written for Photoshop, but its features are available in many analogous programs.[3] Photoshop features that we'll be using include shadows & highlights, layers, and opacity levels for tracing purposes.

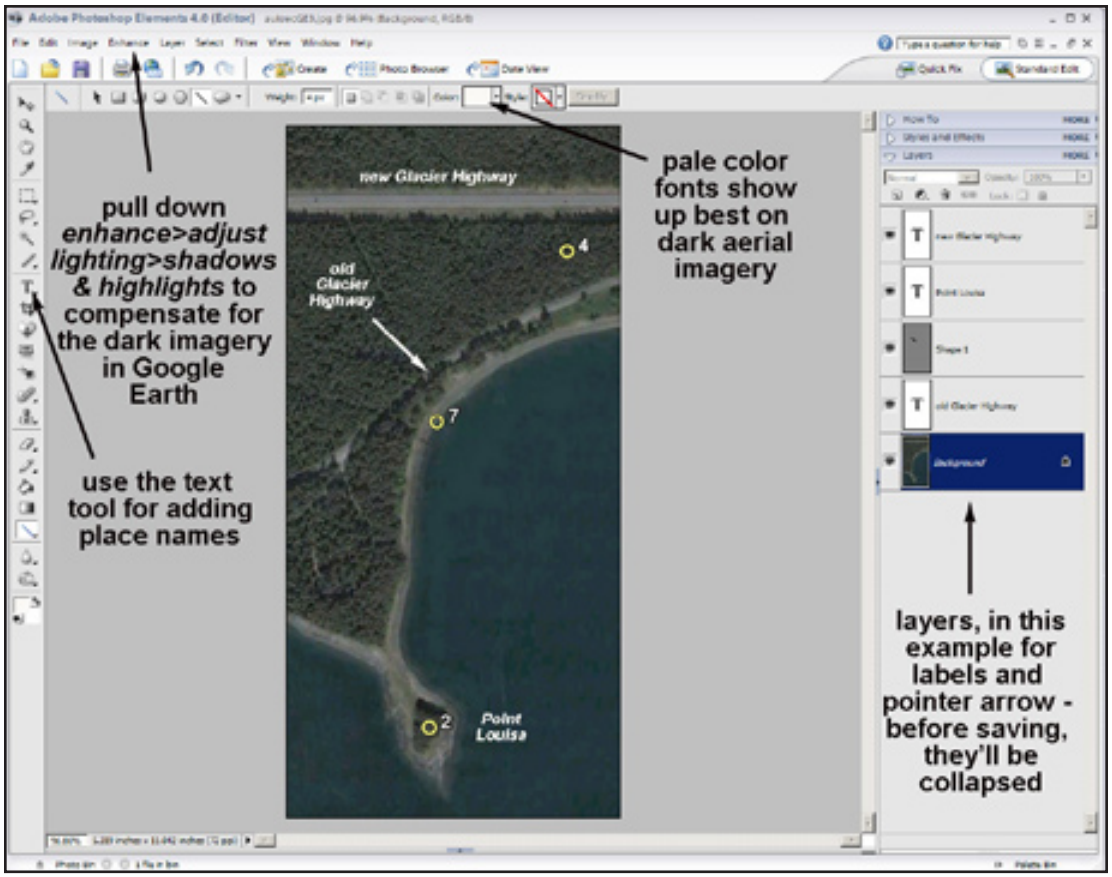
Start by fine-tuning the jpg you just exported from Google Earth. We're fortunate that most of the Juneau area is covered by recent, high-resolution aerial imagery (note in the lower left of the GE window that Auke Rec was shot in May, 2005). But this imagery is very dark while being viewed in Google Earth.

We can correct that, however, after exporting the

JOURNALING FILE ORGANIZATION

One way to structure your journal files is with dated subfolders. Using the *yyyymmdd* format for dated folders is a good habit to get into, because the folders then sort chronologically. (For example, 20100612 means June 12th, 2010.) In addition to these daily collections of field photos, you may want subfolders for web downloads, reference documents, correspondence, etc. If you're also keeping a handwritten journal, perhaps with field sketches, you might consider scanning some of the pages for inclusion in your electronic journal, as in the preceding examples from Hocker & Carstensen.

3 The full Photoshop program is very expensive, but Photoshop Elements, more reasonably priced, has everything the average person needs. All functions described in this tutorial are available in Photoshop Elements.



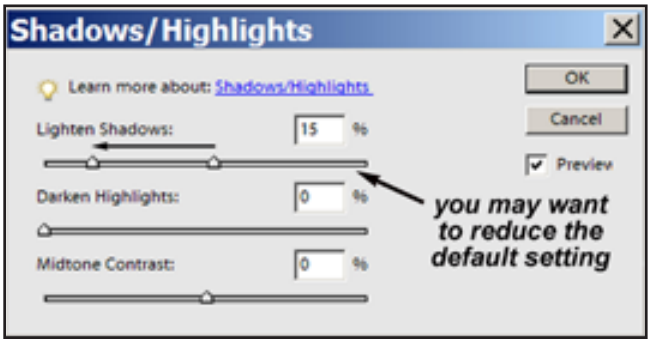
The Photoshop window, and some of the tools we'll be using.

(These screen shots are actually from Photoshop Elements. UAS machines running full Photoshop will have slightly different window layouts.)

view. In Photoshop Elements, open the jpg you just exported from Google Earth.

Almost all image processing programs have brightness and contrast sliders. One solution to an over-dark image is to drag the brightness slider to the pale side. But this changes tones throughout the entire brightness range of the image; areas at the pale extreme may turn completely white, losing detail.

The *shadows & highlights* feature of Photoshop is a better solution. It lightens and gives much greater detail in the overly dark areas, without bleaching the highlights. Try this on the Google Earth jpg: *enhance>adjust lighting>shadows/highlights*. On dark GE imagery, the default adjustments often are so bright as to bring up an unattractive mottling effect on smooth areas such as water. You'll probably have to move the *lighten shadows* slider to the left a bit.

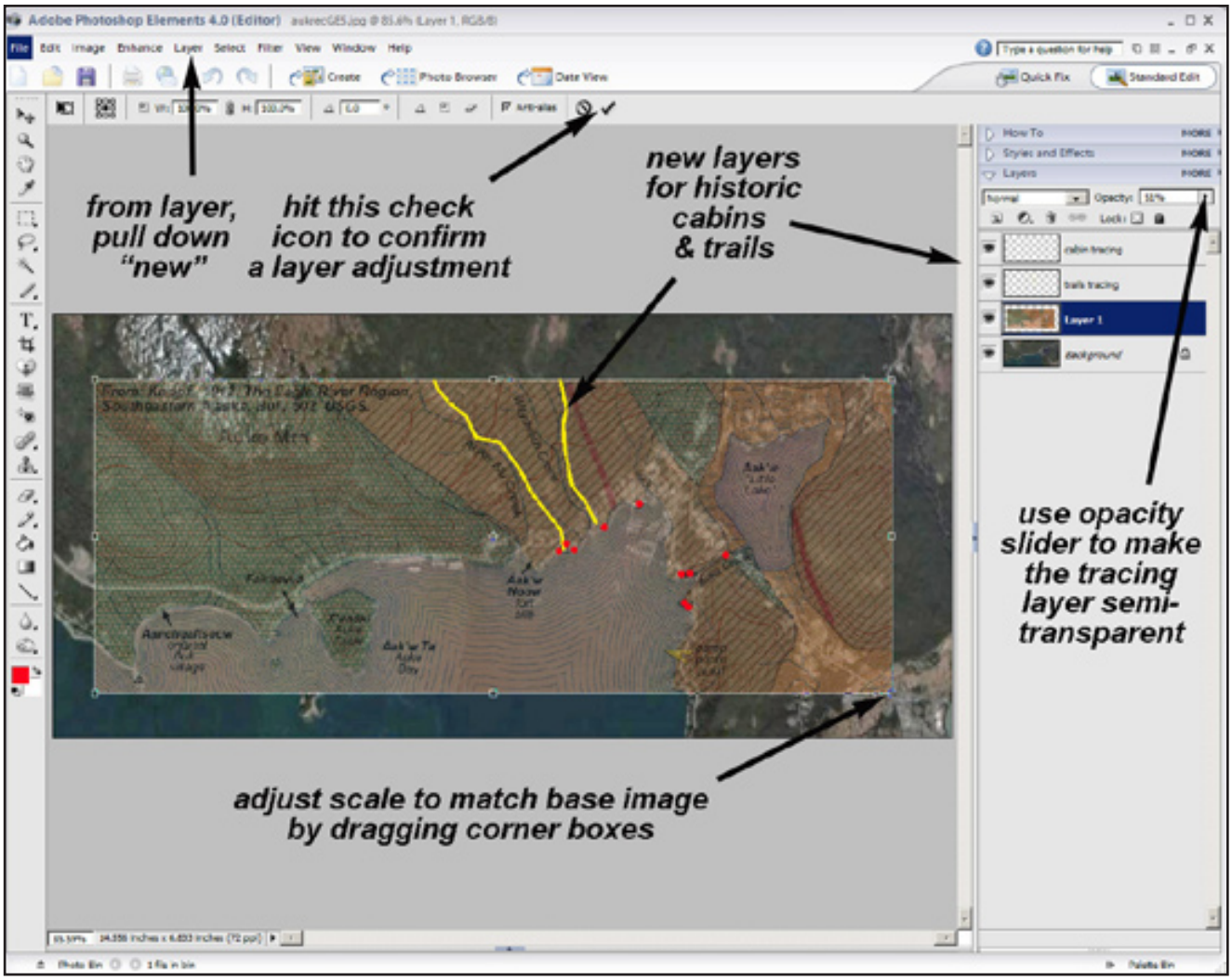


Layers are an indispensable feature of Photoshop. The layers sidebar appears on the right when you begin to add text labels, for example. These labels can be repositioned with the selection tool, or even contoured, with the *warp text* tool, to hug the curve of a road or river, for example. Before saving your image, you normally collapse all these layers into the background: pull down *layer>flatten image*.[4]

Layers also come into play when you add transparencies, either as a means of highlighting features or for tracing. Let's say you want to use an old historical map to trace the positions of mining trails and coastal cabins onto a current air photo of Auke Bay. In the following illustration, a 1910 USGS geology map has been copied and pasted onto the Google Earth export, automatically creating a new layer.

At the top of the layers sidebar is an opacity slider. Use this to make the historical map semi-transparent, so that you can adjust the scale to exactly match the underlying Google Earth aerial view. In this example,

4 Some graphic artists save photoshop files with the layers intact, as .psd files. This leaves open the option of revising the labels later, if mistakes are noted. But the file size of a .psd is 10 times greater than a .jpg, so if you're pretty sure you won't be revising the image later, it's best to flatten it.



The Photoshop window, showing use of the opacity slider (on upper right) to create a transparency for tracing.

the goal is to show historical features compared to modern landmarks. In 1910 there was no coastal road. The yellow lines trace old mining trails into the hills around Spaulding Meadows. The red dots trace cabins, including the fish camp buildings of Mary James (Sheep Creek Mary, 1835-1922, Auk Kwáan, L'eeneidí Clan, Yaxte hít, Big Dipper House) on Auke Creek, and the homestead of Wes Waydelich and his wife Jenny, also Auk Kwáan, at today's Waydelich Creek.

After tracing desired historical features, the historical map layer is removed. Right click on its name in the layers sidebar and choosed *delete*.[5]

You can use the transparency feature of Photoshop to create attractive tints on top of an aerial photo or hillshade base. Create a new layer, draw an outline with the pencil tool, fill it in with the paint bucket, then drag the opacity slider left until the detail of the underlying base image shows through.

Finally, the tracing layer can be used to transfer your GPS track and waypoints to a different base map. This is somewhat of a "back-door" approach, but is useful in cases where direct download to the base image isn't possible. For example, say you return from the Taku River trip, and cable your GPS data onto Google Earth. But the GE view, over so large an area, is disappointingly blotchy, as shown in the following comparison with Google Maps.

So how do you transfer your trip information to Google Maps, short of "eyeballing" it from GE to GM?

Unfortunately, you can't currently cable-download GPS data into Google Maps. But in mapping, there

5 Again, as explained in the previous footnote, you may wish to retain the tracing layer, for further adjustments. In this case, simply turn it off without removing, by clicking the eye button on the left of the name. Save the file as a .psd file for future use, and for importing into your Word or Publisher journal, save the view with transparency turned off as a jpg.

images from Google Maps

Comparison of Google Earth (top) with Google Maps (lower 3 images). Google Earth is not a very attractive base when you zoom out to larger areas, such as the entire CBJ. That's because the different imagery sources–high-res aerials, versus low-res satellite views–create a blotchy, uneven patchwork.

When you need to map a larger area like this, Google Maps gives you more attractive options. Note in the preceding view of a Google Earth window that the icon on the right side of the header gives you the option of jumping straight to the equivalent view in Google Maps.

A good example of the need for this broader picture will be our boat trips to Berner's Bay and Taku Inlet. The GM satellite view would make a very informative base image for a map showing your waypoints. Of the Google Maps options, it has by far the most information, showing glaciers, forest types, and even the plumes of silt emanating from glacial rivers.

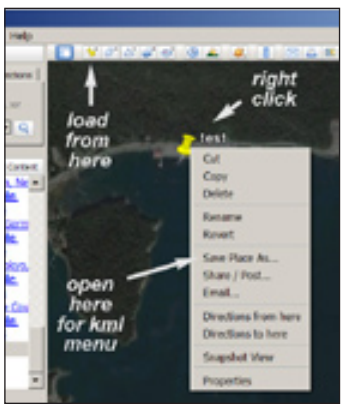
But for some mapping purposes, too much information can be distracting. The GM map view is the simplest of the 3 options for use as a base layer. (You can even turn off the place names shown here.) This might be the best choice for an overview locator map, with a rectangle indicating the position of your detail map. It's also the easiest base for superimposing your own place names.

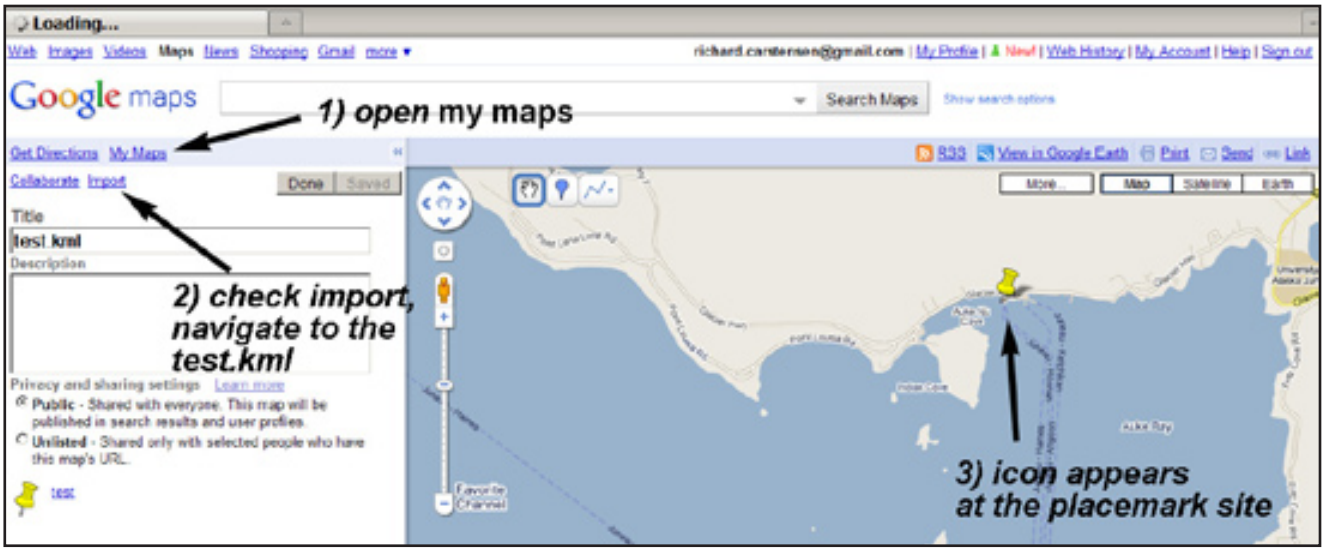
The GM "terrain view" is a tinted hillshade map. Hillshades use shadows to give an enhanced view of mountains and valleys. When it's important to understand topography, hillshades make the best base maps.

Google Maps does not allow you the option of directly downloading your GPS waypoints, as Google Earth now does. But you can display them first in Google Earth, and from there export them as a kml file. In kml format, you can display them in Google Maps.

are always several ways to skin the cat. As just explained, you could add your Google Earth view with tracks and waypoints as a semi-transparent layer over one of the 3 possible Google Maps base layers (satellite, map, or terrain), then manually trace the tracks and waypoints. This is not too difficult with simple lines and points.

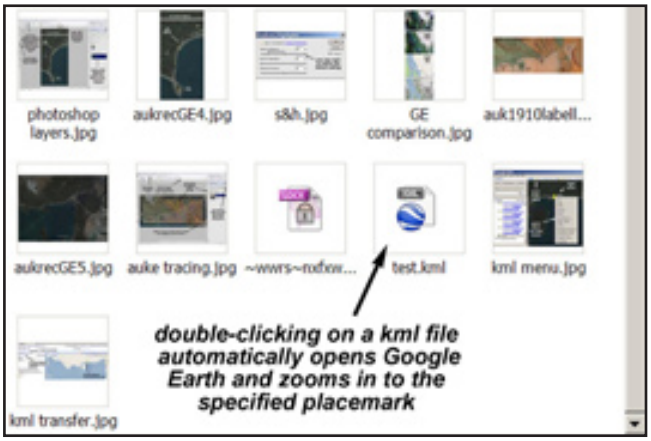
Alternatively, you can create a .kml file from your tracks and waypoints within Google Earth. Kml files are used to share spatial information, between users and between programs. To see how this works, add a placemark in Google Earth, using the thumbtack icon on the header. When you click on this icon, a placemark drops randomly into the window, and you can move it with the hand as long as it's still





images from Google Maps

Google Maps allows import of kml files created in Google Earth.



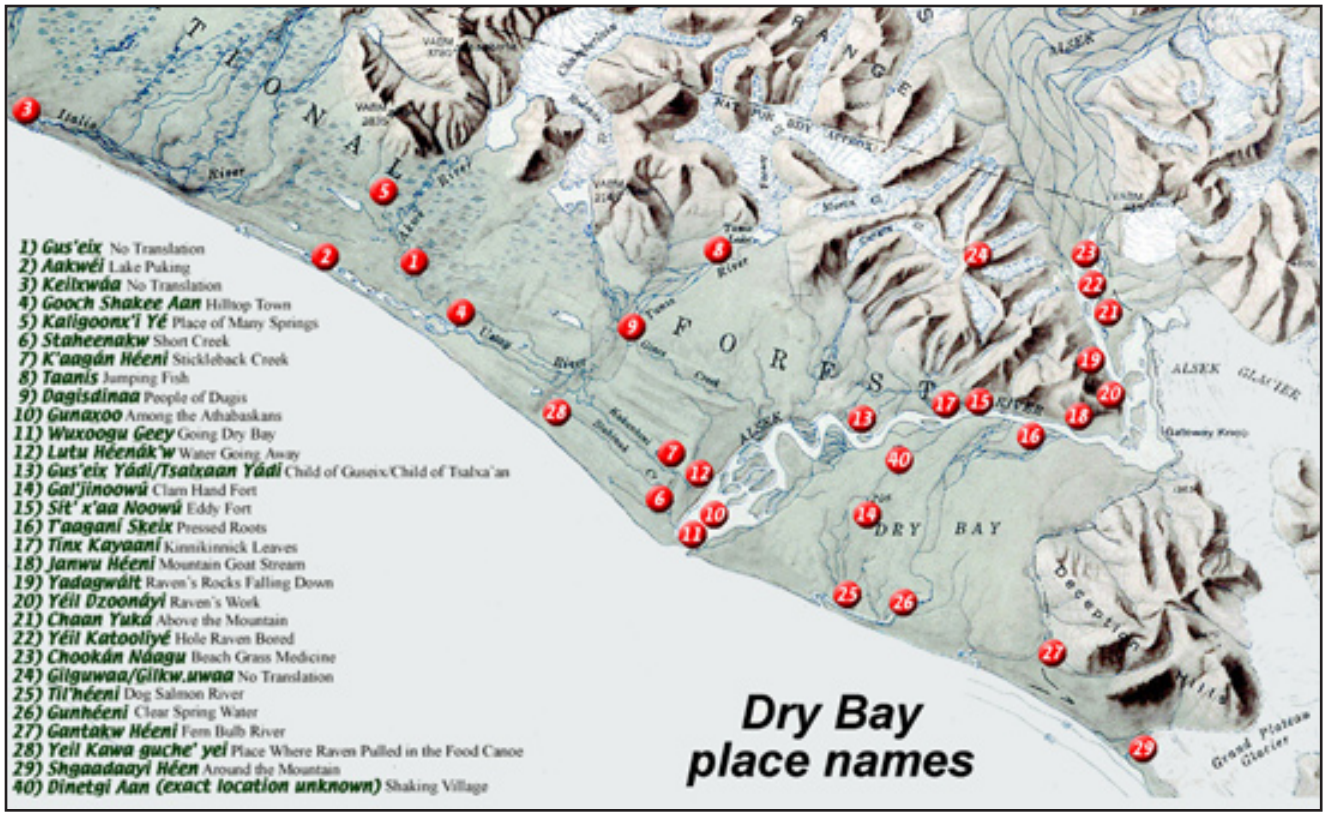
active (i.e. the *new placemark* window is still open). Name it "test," and click *okay*.

Now, to save this location (or any of your waypoints or tracks) as a kml file, right-click on the thumbtack and select *save place as*. The *save file* window opens. At the bottom, change *save as type* to kml, and send it to your journal folder.

You could email this test.kml to a friend. When s/he double clicks on it, Google Earth automatically opens and zooms in on the placemark. It's an easy way to share spatial information, say, in the middle of a telephone conversation, when you're trying to direct someone to your house.

Displaying a kml in Google Maps is slightly less automated, but not difficult. Open the GM website, zoom in to the area of concern, and click *my maps*. This will give you an *import* option. A navigation window then opens, allowing you to select the *test.kml* file. You may find that when the icon appears in the map or satellite window, no background layer is available because of the zoom setting. You only need to adjust the zoom slider, or change the background type, as shown in the previous GE-GM comparisons.

As with Google Earth windows, you can "clean up" the Google Maps window before exporting to .jpg–turning off placenames and extraneous detail.



DRY BAY PROJECT JUKEBOX

When you click on any of the numbered place names in the on-line version of the above map, Fred White, who grew up in Dry Bay, pronounces the names.

from: *http://jukebox.uaf.edu/ Scroll down to Dry Bay Project Jukebox*

"The Dry Bay Jukebox Project is the result of a collaborative effort between the traditional clans of Dry Bay (Gunaxoo), the National Park Service (NPS), the National Forest Service (NFS) and the University of Alaska Oral History Office. . .

Much of this program relates to the two field trips to Gunaxoo; in 1997 to search for the former village on Cannery Creek and for Dine'lgi.aan (Shaking Village), and in 1998 to search for the lost village of Gus'eix. The project also inspired people to gather from throughout northern Southeast Alaska to share information during the Sealaska Celebration in 1998 and in Yakutat later that same year. Much of that information has been condensed into the place name map and is presented here. . .Ultimately, this program is a record of the Gunaxoo Kwaan as it exists at the end of the 20th century, its memories of past events and peoples, and their powerful connection to this very special place. Enjoy and learn."

Cultural mapping

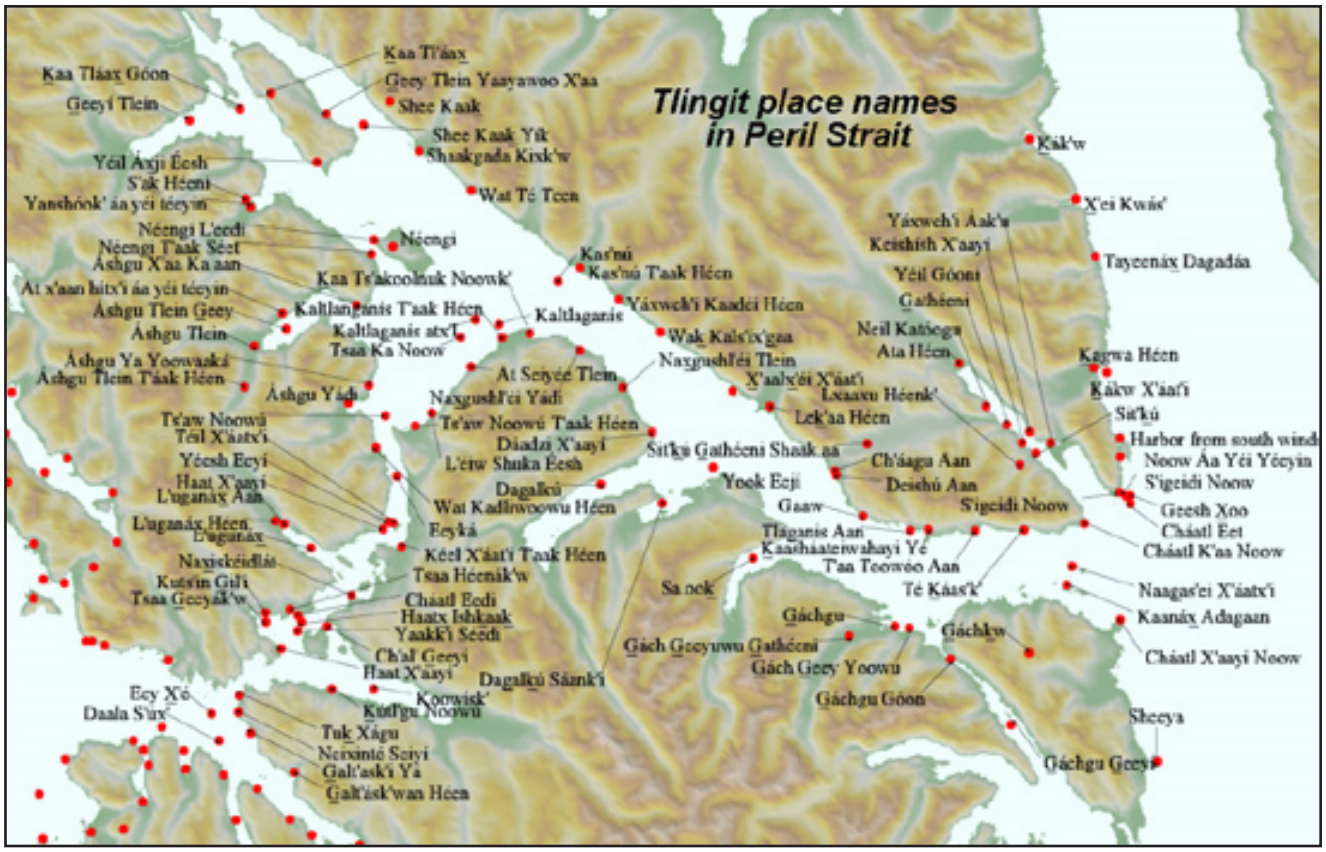
One of the most exciting developments in Southeast Alaskan cartography is the resurrection of Tlingit place-names. Among many great examples is Dry Bay Project Jukebox. In addition to audio-maps (sample above), this project recorded and posted hours of interviews relating to the history and use of this cultural crossroads for Tlingit and Athabascan people. Bert Adam's tale of the rediscovery of the lost village of Gus'eix–and the associated slide show–is just one serving in a multimedia feast.

In the Sitka area (example, next page), place-names mapping began as early as 1975, TIingit Elder Charlie Joseph Sr. began working with the newly formed Alaska Native Brotherhood Education Program, today known as the Sitka Native Education Program.

> *"We would pack up and travel around in the Program's van as Charlie pointed out various locations and told us their names in Tlingit,"*[1]

From Yakutat to Saxman, today's place-name archivists are building on a solid foundation established in 1946 by the work of Walter Goldschmidt, Theodore Hass, and interpreter Joe Kahklen of Klukwan. This intrepid team interviewed Tlingit elders in each Southeast village, recording and mapping place names, along with statements on traditional land use (Goldschmidt & Haas, 1998). Some of the elders recorded in *Haa Aaní. Our Land: Tlingit and Haida land rights and use*, were nearly 100 years old in 1946, and

1 Ethel Makinen, clan mother of Sitka L'uknax.ádi. *www.sitkatribe.org/placenames/*



Example of one of the many nested place-name maps on the Sitka Tribe website: Many are linked to audio clips with name pronunciations.

www.sitkatribe.org/placenames/

Used by permission. Please do not post or redistribute this map.

Original Lingit Place Names Shared by Charlie Joseph, Sr., 1979
Lingit Place Names Recorded and Mapped by Sitka Native Education Program:
Isabella Brady, Ethel Makinen, Roberta David, Vida Davis, Anne Johnson and Nellie Lord, 1979

Materials Translated, Transcribed and Recorded by Ethel Makinen and Vida Davis, 1993, 1998-2001
Project Review and Collaboration: Herman Kítka, Sr. and Mark Jacobs, Jr. 1998-2001
Project Coordination for the Sitka Tribe: Terry Pegues 1993 and Robi Craig 1998-2001
Project Support, Sitka Tribal Education and Training Program: Roxanne Houston 2000.2001

SENSC Local Research Coordinators: Ethel Makinen and Vida Davis
GIS Map Production: Robi Craig (STA) and Matt Ganley (Map-Alaska)
SENSC Project Coordination: Thomas F. Thornton and Harold P. Martin

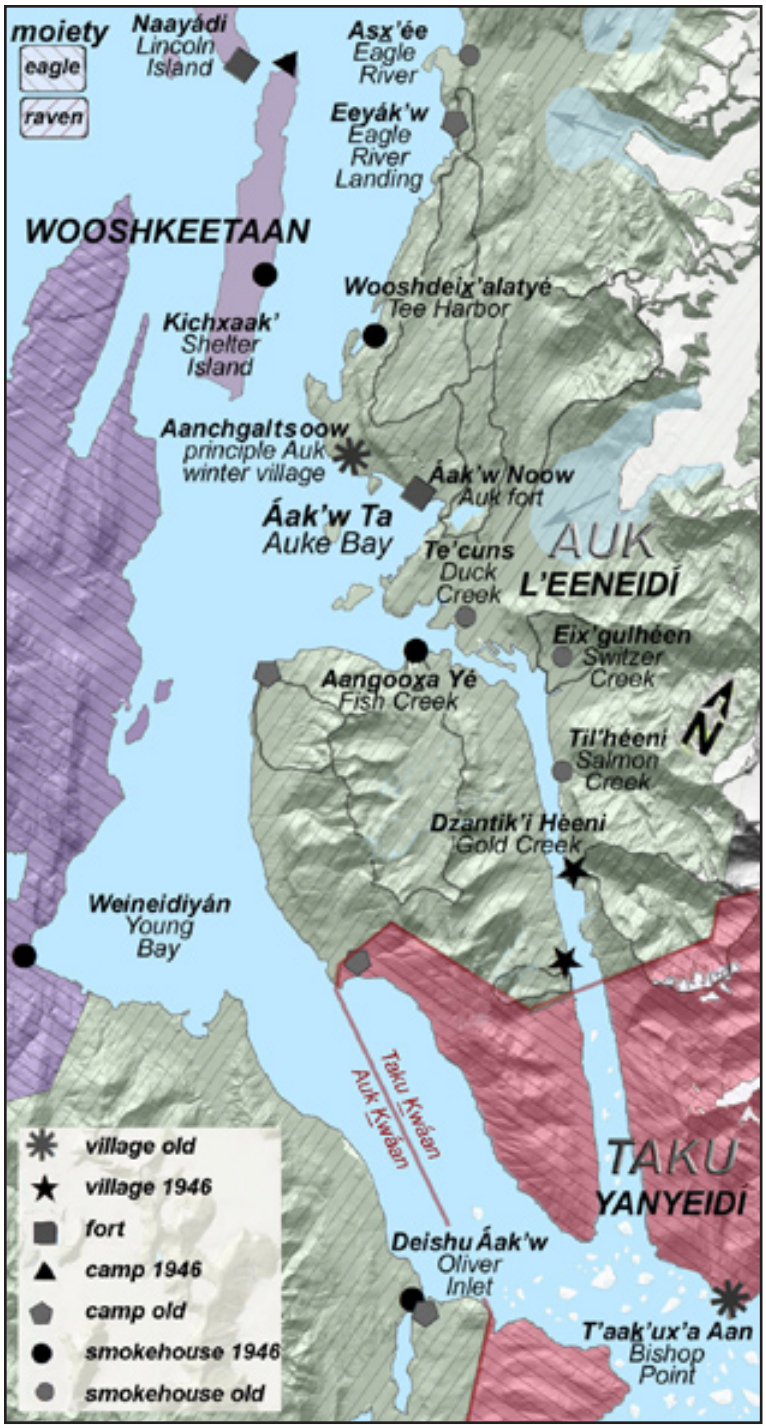
their memories extended back to a time before European settlement. In Juneau, for example, the oldest person they talked to was Mary D. Johnson, L'eeneidí clan, 98 years old. She had fished in Dzantik'i Héeni (Gold Creek) as a mature woman before Joe Juneau ever saw it.

In the 1990s, Thomas Thornton–first with the Alaska Department of Fish and Game and later with the University of Alaska Southeast–began to work with elders in several Southeast villages to record and map place names. For example, at Angoon and Kake, he and elders created web-based cultural atlases, now stored on the Alaska Native Knowledge Network.[2] These maps are password protected for Cultural and Intellectual Property Rights. Thornton is presently at Oxford, where he is working on *Haa Léelk'w Has Aaní Saax'u: Our Grandparents' Names on the Land*, a guide to Southeast Alaska native place names.

Another leader in place names mapping is the community of Hoonah, where a long collaboration with staff at Glacier Bay National Park has resulted in an extraordinary cultural map of northern Chichagof Island and Sít'eeti Geeyi (Bay taking the place of the Glacier).With the help of geomorphologists and Gustavus naturalist Greg Streveler, the elders have even reconstructed a vanished landscape, restoring ancient place names for sites since erased by advancing ice and aggrading outwash deposits (Connor *et al*, 2009).

As one result, visitors to the lodge at Bartlett Cove will soon have access to a place names atlas on an interactive touch screen. Pressing on any of the dozens

2 *www.ankn.uaf.edu/NPE/oral.html*



Áak'w Kwáan place names and cultural sites, based upon Goldschmidt & Haas (1998) and Hope (2003). Villages, camps and smokehouses still active in 1946 are distinguished from older sites. To give a sense of conditions just prior to first European contact, expanded glaciers (blue tint) are shown in the Eagle, Herbert and Mendenhall Valleys. Note bergs in lower right; even as late as the mid 1800s, ships were trapped in Gastineau Channel by ice from Taku Glacier (DeArmond, 1980).

Note the much lower density of place names on this map compared to the preceding examples from Sitka Tribe and the Dry Bay Gunaxoo clan. These are merely the existing published names. A long-term goal for Auk and Taku country might be the creation of an atlas equal in detail to those of other Southeast communities. The opportunity for Juneau students to connect with elders and GIS technicians in such work makes this objective all the more desirable.

of place names launches a sound file of an elder pronouncing the name. A sidebar connects to stories about some of the many names. (Wayne Howell, NPS, *pers comm*)

None of these inspirational examples happened quickly. They represent decades of patience, trust, and willingness to share,[3] so that place names and their stories–the tangible record of our connections to the land–are preserved for future generations. Where are the "lost villages" of Auk and Taku country? What are the first steps on the road to their rediscovery?

Place names around Juneau

To learn more about the meaning of Tlingit place names on this map of Auk Kwaan territory, we talked to Marie Olson (Auk Kwáan, Wooshkeetaan clan) and David Katzeek, Shangukeidí clan. David's ancestors come from the Klukwan and Angoon but he lives in Juneau. He showed us where the Shangukeidí's Thunderbird House used to be located at the old Auk village.

Marie acknowledges that Tlingit names can at first be a little intimidating, but she encourages us to persevere:

> *"For non-speakers, it [Tlingit] can be difficult to pronounce. But when I heard the radio announcer say 'Dzantik'i Héeni,' I said they did a good job. So it's really not that difficult. Well neither is the name of Auke Lake. Aa means lake, but when we add 'k to the end of it, it means little lake. So that's the way Auke Lake was named. When they say Auke Lake, they're just repeating 'lake.' [i.e. it's redundant.]"*

Aanchgaltsoow. It's appropriate to begin here: first, because the old village site at today's "Auke Rec" was so important to the Auk people; and second because Aanchgaltsoow illustrates the impressive depth of meanings in this complex language. We

3 There are of course constraints on use and distribution of cultural atlas work. An excellent summary is *Guidelines for respecting cultural knowledge*, on the Alaska Native Knowledge website: *ankn.uaf.edu/publications/knowledge.html*

Aanchgaltsoow

Alaska State Library, Case & Draper collection, 1888, ASL-P39-1172

should probably not assume that any one source gives us the "last word" in place name definitions.

There are currently 2 publications that offer meanings for the name Aanchgaltsoow**.** The *Dictionary of Alaska place names* (Orth, 1967) claims:

> *"The name 'Anchguhsu' (or Antcgaltsu) is reported by Swanton to mean 'town they abandoned,' a name obviously applied after abandonment about 1902."*

The meaning is in fact *not* "obvious." Thornton (2009) interprets Aanchgaltsoow somewhat differently, meaning "the town that moved," called that because the Leeneidí clan's first settlement after arrival from Young Bay was in the Fairhaven area to the east.

In other words, in the Swanton/Orth interpretation, Aanchgaltsoow is a "retrospective" name, not used during the town's actual occupancy, whereas in the Thornton interpretation, the name would have been used durign occupation. In this scenario, the name had more antiquity; the "moving" refering to the earlier immigration from Fairhaven rather than the evacuation for downtown Juneau in the 1880s and 1890s.

But talking to Marie and David, and linguist Richard Dauenhauer, we began to understand that the word may have more nuanced meanings. Marie told us:

> *"It's a difficult name [to understand]. It means when the people pack up and move. That's the way Cecilia [Kunz] explained it to me. I never knew the name of that village [before Cecilia explained it]. But that's where my mother's mother came from. She was Eagle, Wooshkeetaan."*

Marie made clear that "moving" in this case did not imply permanent abandonment of this or an earlier settlement, but a back-and-forth process:

> "*It was their winter village, and in the summer they would go to Gold Creek . . .down to Thane [and to] the outlet stream from Auke Lake, a sockeye stream."*

Perhaps the village's name even held a reference to the excellent visibility from Auk Rec beach. Marie told us of its strategic importance in defense–you could always tell when friends or foes were approaching. From the longhouses, and from the bluff to the east at Auk Nu, permanent lookouts kept watch over the comings and goings in Auke Bay.

Richard Dauenhauer (pers comm) took the word apart into its components:

> *"Aanchgaltsoow as Tlingit name for Auke Rec site. . . . Aan can mean "with it" (a + n) and can also be town or land (aan). . . The verb stem and theme are to move a population, usually for a short time, as in going to or from a seasonal village site."*

David Katzeek offered what may be the closest single-word interpretation for Aanchgaltsoow: "nexus." This town was the hub in a constellation of seasonal settlements. Like so many Tlingit place names, it tells of dynamism and process, so much richer than Euro-American names honoring distant people who never visited or cared about our home.

Dzantik'i Héeni (Gold Creek) This is probably the most often-spoken Tlingit place name in Juneau, but what few realize is that our middle school by that name is 5 miles from the stream that the Auk people called Dzantik'i Héeni. The original name, means Creek of the little flounders, refering to baby starry flounders (*Platichthys stellatus*) that rear in estuarine sloughs. Before hydraulic gold mining, water removal

This retouched photograph is a visualization for 1879, the year before the big discovery at Little Flounder Creek. To locate the 1879 shoreline, it helps to know that essentially all construction outboard of Willoughby & Glacier Avenues was on placed fill. Also, the land has risen, around 6 to 8 feet.

Pre-contact Dzantik'i Héeni was the finest salmon stream in Gastineau Channel, but the firehose climate precluded winter villages. According to Jake Cropley, there were 2 small smokehouses at the mouth of the creek (Goldschmidt & Haas, 1998). If you look close, you'll see them in the seasonally trampled meadow next to the shifting stream outlet.

and subsequent channelization excluded salmon from this stream, Dzantik'i Héeni was considered the finest fish stream in Gastineau Channel. According to Jake Cropley, (Goldschmidt & Haas, 1998) there was even a steelhead run:

> *"Gold Creek was called Dzantik'i Héeni. This was the biggest salmon creek of all, with dog salmon, humpies and cohos; and steelhead after the freeze. This place belonged to my mother and my uncles. Two smokehouses which belonged to my aunts and their husbands were still there at the time gold was discovered in Juneau.*

Eix̲' gulhéen (Switzer Creek) This–not Dzantik'i Héeni–is the name of the stream flowing by DZ middle school. We learned the meaning of the stream's name from Marie Olson:

> *"It's describing the creek up at the top where all the coho go, winter coho, they go through that little crooked creek. .. . It just remained warm – I've often wondered about that."*

There's of course no thermal springs on Eix̲' gulhéen. What the name probably referred to was groundwater influx. Retired fisheries biologist Bob Armstrong says in winter, the unusual pond at the confluence of East and West Marriott creeks (tributaries to Switzer) stays warmer than the stream, because of water upwelling from deep sediments below the frost line. Eix̲'gulhéen flows all winter, while non-spring-fed streams freeze or go dry. That makes it one of the best wintering streams in the CBJ for coho, dollies and cutthroat. For the same reason, it's also key wintering habitat for American dippers (Mary Willson, pers comm).

If our interpretation of Eix̲'gulhéen is correct, it suggests a rich understanding of hydrology and fish habitat, which one would expect of people truly native to this place, who knew the stream in all of its moods and seasons.

This exploration of the meanings of Aanchg̲altsoow, Dzantik'i Héeni and Eix̲'gulhéen has whetted our appetite for further integrating of natural and cultural history. It suggests that even where local TEK (traditional ecological knowledge) has been lost, there is potential to resurrect it through collaboration between naturalists, scientists, and culture bearers. Obviously, our guesses about place-name meanings involve a good deal of speculation, and we should remember to be clear about that. But the naturalist is a close spiritual cousin and those who once gleaned their livings entirely from local woods and waters (preceding sidebar on *Ways of knowing*). In many ways, we speak the same language.

Scanning the previous map, with place names recorded in Goldschmidt & Hass (1998), Marie and David provided us with a few simple translations. We don't know much about their associated stories:

Weineidiyán (Young Bay) Marie Olson told us the name meant "Place where you take it easy for awhile."

Translations from David Katzeek:

Naayádi (Lincoln Island) means "Clan child." There were both Eagle and Raven in that area.

Kichxaak' (Shelter Island) "Where the eagle paddles with its wings." There were large forts on both Shelter and Lincoln islands.

Asx̲'ée (Eagle River) This name has something to do with an opening in the trees.

Til'héeni or **Téel'héeni** (Salmon Creek) As with the English name, this creek was named for the dog salmon. According to Jake Cropley (Goldschmidt & Hass, 1998):

"Til'héeni was a big source of dog salmon and humpies. There were 2 smokehouses there in my time, but there are none there now [1946]. Some Natives go there to fish for their own use, and whites also use that place. A Native named Salmon Creek Jim had a smokehouse there and claimed the place until 12 or 13 years ago. He went up Salmon Creek as far as the falls to hunt."

By working with elders during this course, we hope to fill in more of the gaps in understanding of local place names and the stories behind them. Many more names are known by Auk and Taku K̲wáan elders, and David Katzeek has given us some fascinating examples. But at this early stage of cultural atlas work for the Juneau area, it seems best to start slowly, restricting ourselves to the limited but widely respected collection of names published in Goldschmidt & Haas (1998).

We close with a remarkably prescient quote about cultural differences in place-naming. In 1790, even before Vancouver charted the Southeast archipelago, besmattering it with the names of his patrons and shipmates, explorer Charles Fleurieu described the land and people of Sitka Sound. He was the first to record the term Lingit Aani (Tlingit country). Unlike the large majority of his contemporary Europeans, Fleurieu felt that Native place names should be sought out and retained on the ever-growing atlases of the Pacific Northwest, rather than replaced by foreign ones:

"I restore to the bay [Sitka Sound] what belongs to it, the name which it has received from its inhabitants; if we were willing to act in this manner in regard to all the places whose proper names are known, we should preserve the nomenclature of geography, from those variations, annual as it were, which have no other object than to gratify the caprice or the vanity of a navigator."[4]

4 *http://dnr.alaska.gov/parks/oha/castlehill/chptthree.htm*

Tools, skills, synthesis

We've now reviewed most of the generic technology[1] used by researchers and naturalists to collect data in the field, and portray it on maps. GPS units, cameras, and their associated computer programs provide wonderful new ways to observe, measure, and illustrate your world.

But in and of themselves, these tools may not bring you much closer to an understanding of your environment. They simply enable you to collect some pieces of evidence, and look at the landscape from novel perspectives. The real reward comes next, as you review your photos, comparing them to their mapped locations, and ***begin to ask questions***.

The questions may lead to conversations with experts, or internet searches. They may remind you of something you read once, or wrote yourself long ago. Some of these questions have simple answers; others will tease you for years. If you go on to a career in science, some of these questions could become your life's work, the basis for creative experiments and detailed measurements.

But anyone can benefit richly from the methodical practise of recording experience in nature. In the next sections, we give examples of the why, what and how of "journaling."

1 By generic, we mean common to all fields, from geology to forestry to archeology. Each discipline, of course, has its own professional tools.

CARSTENSEN JOURNAL EXCERPT

A field trip with an expert is an excellent occasion for journaling–preferably on that very same evening. Otherwise, 80% of the cool stuff you learned is likely to be lost from memory before the year is over. Last summer, the British Columbian ethnobotanist Nancy Turner visited Juneau. Nancy probably knows more about the cultural use of plants on the Pacific Northwest coast than any person alive. One of the conclusions she and other researchers are reaching is that–to a far greater degree than realized by early explorers or contemporary anthropologists–Northwest Native groups weeded, transplanted, fertilized, and carefully tended gardens of plants we consider "wild." (The degree to which this applies in Tlingit country is not yet understood.) The following is excerpted from my journal of August 14, 2009. It was typed up from memory-joggers scribbled on a notecard in the field. (RC)

"Rice root fields were tended. Nancy knows elders in different tribes who as children were responsible for re-planting the unused base of the roots - the 'whiskers.' In general, there was far more culturing of plants than we attribute to these presumably non-agricultural northwestern peoples.

For example on Skeena River terraces in Tsimshian country there are relict, anthropogenic communities of crabapple and high-bush cranberry with an understory of rice root. The upper branches of the crabapples were partially broken to bend downward for easier picking. This sounds almost as intense a human signature as described by folks like Gary Nabhan (*Cultures of Habitat*) and Wade Davis (*One River*) for tropical and subtropical environments."

Journaling: putting it all together

Richard Carstensen

I began keeping a journal shortly before I moved to Alaska in 1977. The process of journaling[1] is central to my work and recreational life; it's the way I taught myself to be a naturalist, and one of the principle ways that I share my observations and insights with others. I created an 85-page journal last July when consulting on the proposed hydro development in the Soule River watershed, near Hyder. On my last birding trip to Mexico, my journal ran 98 pages. The latter trip was strictly "for fun." Whether payment is involved is irrelevant. Work or play, the goal is learning, and for me, the best way to learn is journaling.

Before getting into some of the technical "recipes" for successful journaling, I'd like to begin with some thoughts on *why* this practise–in some fields a virtually lost art–is important in the 21st Century.

At the 4th Glacier Bay Science Symposium, naturalist Greg Streveler gave a short talk entitled *Peripheral vision as an adjunct to rigor.* As a resident of Gustavus since the 1960s, and long-time park explorer who has worked intimately with scientists, Greg laments the gradual decline of broadly-based field observations, recorded in the journals of visitors and park staff. In the park's early days, rangers and researchers kept journals, in the tradition of Henry Thoreau and Rachel Carson. These Glacier Bay journals are now priceless historic records, but few of today's backcountry travelers are creating such records for the managers, park afficionados and general public of the future. Excerpts from Greg's talk are in the following sidebar.

Science has become increasingly specialized. In one sense, this is an inevitable tendency as each scientific discipline digs ever deeper. We could spend our entire lives reading about Pacific-rim plate tectonics, for example, and still fail to keep up with all the advances in this fast-paced field. In pursuit of geoscientific "rigor," we could lose track of birdsong, plant succession, and the pagentry of Northwest Coast art–the type of alertness that Greg refers to as our "peripheral vision," and that David Katzeek calls Adaa analgéin–Raven's way of studying the world.

Neither Greg nor I object to scientific specialization *per se*. As generalists, we reap the fruits of scien-

1 "Journaling" is not a recognised word. But just as "birders" go "birding," it seems to me that "journalers" practise "journaling." Spell checkers always highlight "journaling" as problematic, whether you choose one "l" or two.

tists' painstaking work and astonishingly deep insights. Nor do I mean to imply that you can't be both a scientist and a naturalist. Some older scientists are superb naturalists, with broad understanding in many fields outside their specialties.

The problem is the stuff that falls through the cracks between specialties. The costs appear at several levels:

1) At the management level, it's very difficult to even *understand* these extremely specialized studies–let alone to make regulatory decisions based upon them. A broader, contextual framework is needed.

2) At the personal level, it's hard for a specialist to develop a sense of place. That takes, as Greg puts it, "the investment of heart." And we can't love our place without at least attempting to understand its biota, its seasons, its ancient substrates, and its deep, slow changes.

3) At the community level, a collection of specialists is like the 3 blind men describing the elephant. We must each take off our blinders, and exercise our peripheral vision. Our model should be the community of hunters and fishers and gatherers who inhabited Southeast Alaska 250 years ago. Imagine the collective knowledge and love of place in a coastal village of 30 people! Every woman over 50 years old knew as much about plants as Nancy Turner. Every old man knew as much about fish and wildlife as Herman Kitka. And every child and young adult was apprenticed to those mentors. Imagine the fireside discussions, as master observers traded stories of their daily quests in the woods and waters!

In the sound-bite culture of the 21st Century, journaling is one patient practise through which we could approach once more that communal sense of place.

Henry Thoreau wrote–in perhaps the most famous nature-journal of North American literature–that firewood heats you twice: once while you're sawing and splitting it, and again as you sit by the stove. The same could be said about journaling: it first illuminates you in the act of writing and compiling, and again years later, when you pull down that notebook from the shelf, or hunt through your digital files, to relive a memorable experience, or enlarge upon a fruitful idea.

In the 1970s, when I first realized I was on the path to becoming a naturalist, I took usually 5 to 20 field notes per day, each about a different species or phenomenon. At that point, I wanted mainly to learn the names of things, the progression of the seasons, how habitats changed over time, and who ate whom. I focused for the first 12 years on one square mile at the mouth of Eagle River.

This tight geographic focus is probably typical of the early training of naturalists. Because we seek at least

A LOST BUT RECOVERABLE WAY OF SEEING

The following comments are excerpted from a short talk on the role of the generalist in Glacier Bay National Park.

Peripheral Vision as an Adjunct to Rigor
Greg Streveler

"Over recent decades at Glacier Bay, there has been increasing emphasis on rigor in the selection and implementation of studies. . . . Taken in sum, these characteristics result in deep but narrow views of the world. If we analogize the Glacier Bay ecosystem to a broad-band spectrogram, modern research brightly illuminates a small number of spectral bands at the cost of leaving large segments of the spectrogram in darkness. . .

Happily, this problem can be at least partially mitigated with little or no loss to the core value of research. Here are some thoughts on a strategy for illuminating the gaps between studies . . .

• Encourage investigators to report on phenomena outside their study objectives but within their expertise. . .

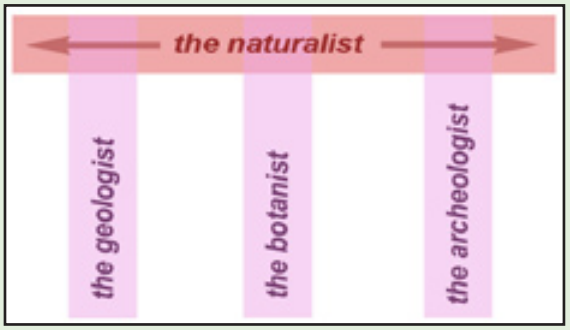
• Create a conducive environment for interdisciplinary work and for linking complementary studies.

• Encourage long-term research. It generates seasoned observers capable of making many sorts of observations in a contextual fashion.

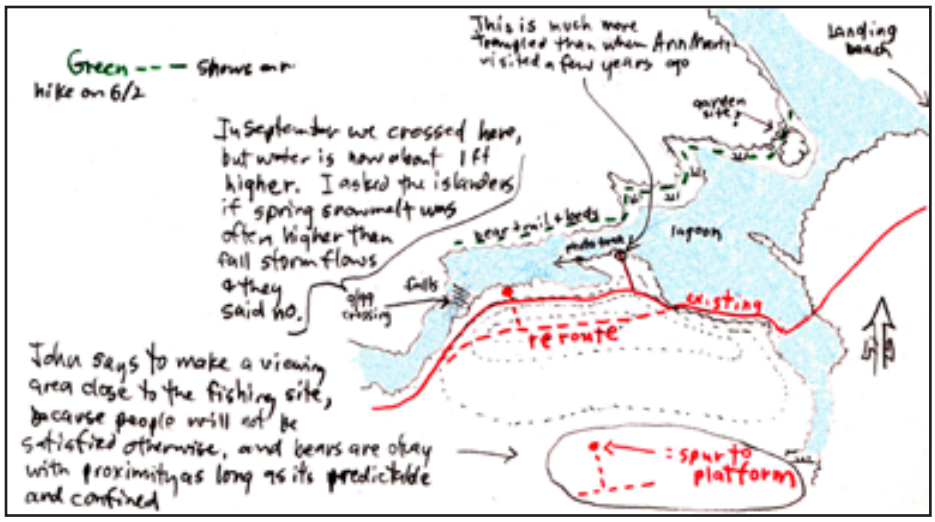
• Encourage the National Park Service and USGS field staff to keep personal journals of observations.

• ***Develop a system for guiding, accumulating and reporting ancillary observations. This need overarches all the above; without it, they will probably remain just notes buried in notebooks or files.*** *[RC italics; we'll return to this question of how to share journals with our community!]*

These ideas in sum approach what I mean by peripheral vision, but there is a final, more elusive element that one senses in the joy we all feel when listening to one another's results: the investment of heart—dare I say love of place—that always arises when any group I've ever been in talks about Glacier Bay. This feeling can unite Tlingit resident with Caucasian fisherman with researchers with park managers with tourists. This is the deep ecology of place, which allows us all to sense what we cannot measure, and which leads us to give back to Glacier Bay what it has so unstintingly given us. Anything that increases this is a good thing."



The naturalist is typically broad and shallow in terms of discipline, while the scientist is typically deep and narrow (RC).



Sketch map from a trip to Lake Eva's outlet stream on Baranof Island in May, 2000, to discuss potential trail reroutings to reduce negative interactions between people and brown bears.

entry-level familiarity with such a diversity of disciplines, we stick to an intimately-known home turf. In fact, it could be said that naturalists' only specialties *are their places*.

By the time I left Eagle River, my geographic interests had broadened to include the entire Juneau road system, as well as selected very special environments farther afield: Glacier Bay, Admiralty, outer Chichagof, Yakutat. My journals reflect these expanding interests. I kept daily logs on kayak trips and consulting jobs, noting especially the unique characteristics of remote places I'd likely never see again. These notes were sometimes accompanied by quick sketch maps, crude drawings, and references to photos taken in each location. Today, I consult these mid-career journals more frequently than my early-career notes. That's probably because most of what I learned early on–species names, diets, behaviors, etc–is still in my head, strengthened by daily reacquaintance. In contrast, the things I saw on day 16 of a paddle around Kuiu Island in 1994 now mostly survive only on paper.

I filed my 35mm slides chronologically, in annual 3-ring binders, according to a numbering system developed by my mentor Professor Donald Lawrence. (See preceding section on repeat photography.) Don steered me well; today I'm able to immediately relocate any slide I took between 1988 and 2000. But Don could probably not have anticipated an even better organizing system that had to await the advent of digital photography.

In 2001 I bought my first digital camera and my first laptop. Secure in a waterproof pelican case, the computer began to follow me into the field. Even in backcountry field camps, I could work deep into the night, to the purring of a little Honda generator, behind a distant tree at the end of a 100-foot extension cord. As with most of my technological advances, I did not pioneer the computerized field camp, but merely followed in the footsteps of the inimitable Bob Christensen, as adept in the digital world as he is on bear trails. I'd been making maps with pen and ink for 20 years. When Bob introduced me to GIS, it was like handing a caveman a scoped rifle.

Suddenly, my journaling took a quantum leap in sophistication. Beautiful maps could be prepared in minutes that used to take me all day. And no longer were the day's photo illustrations filed away in separate notebooks from the journals (after a 2-week journey through the mails to the developers). Now they could be downloaded and inserted directly into the daily report.[2]

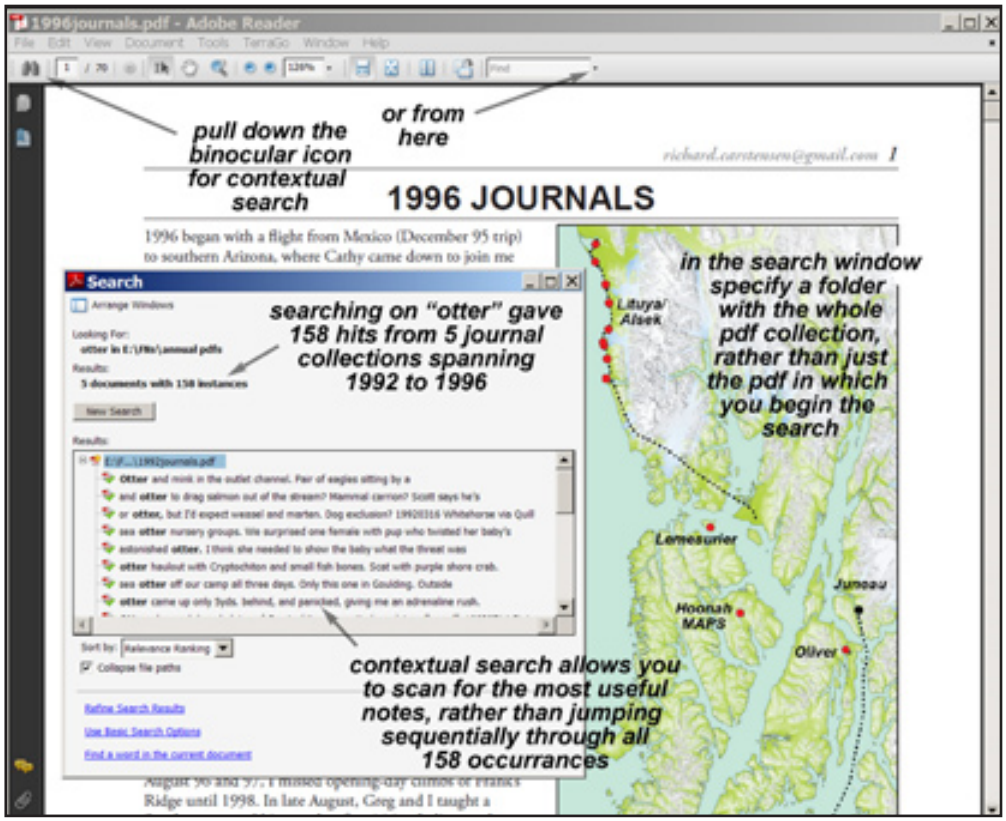
The resulting instantaneous proximity of text and illustrations is more than a matter of convenience, because each informs the other in often unforseeable-ways. For a visually oriented person, this can be especially fulfilling.

Typically, in the creation of a report or article, the writing comes first, and illustrations are thrown in almost as an afterthought, to pretty-up the page. This is especially true of large-circulation magazines and book publishers, who have separate staffs for word-smithing and photo-editing. By the time that picture gets inserted, it may have little to do with what the author was originally trying to convey. Most captions unfortunately reflect this lack of communication. Esthetics often trump information.

I usually turn the text-first layout procedure on its head. On return from the field, I deal *first with the visuals*: the pictures and tracks and maps. Opening the page layout program,[3] I begin by dropping in the

2 Every field photo–not just those that become part of the journal–is named and filed in a dated folder. Although the filing of these images is chronological–just as with Professor Lawrence's system for Kodachrome slides–naming them allows searches by subject. I can quickly locate almost every rough-skinned newt photograph I've ever taken, simply by typing "newt" into the search box, and specifying the proper drive.

3 I work in Indesign, but in this class we'll be using the more widely available Microsoft Publisher.



Example of a contextual search in Acrobat Reader. This search is more powerful than a search in Word, because it shows you each sentence in which the word or words appear. It also allows searches of entire folders or drives: not just the pdf from which the search was launched

map of the day's route, and a few photos, selected for clarity and relevance to the day's work. Only then do I start writing. With the illustrations and text together on the page right from the beginning, my left and right brains collaborate better, and my enthusiasm burns at a brighter pitch. It's almost like I'm chasing down the cool ideas that are hidden in those pictures and maps, vividly remembering the day's adventures.

These prolifically illustrated digital journals, each converted to pdf, are of course much easier to share with colleagues than the earlier handwritten ones. I soon recognised how much more interesting and accessible they were, and decided to gradually convert the handwritten journals to digital format. Using a voice recognition program, I narrated the journals from 1992 to 1996 into a microphone, transcribing them with occasional tweaks from the keyboard. I also scanned most of my old 35-mm slides, and inserted them into the daily field notes. My kayak routes and backcountry bushwacks were originally pencilled onto topographic maps and marine charts; I transfered these to hillshade bases or aerial photos in GIS–less accurate, of course, than a GPS-measured track, but still valuable.

Ultimately, instead of the 5 years of transcribed and spruced-up journals in the example above, I'll have more than 3 decades of illustrated Southeast Alaskan field notes in pdf format. At that point, I should have quite a gift to pass along to future Southeast Alaskans. In the year 2110, I hope it falls into the hands of a few eager naturalists with rugged attention spans.

Certainly, there are more ways to teach yourself, *and share what you learn* than the traditional nature-journal. My friend Bob Armstrong is one of Alaska's finest and most dedicated naturalists. Bob doesn't keep a journal, at least of the kind I've just described.

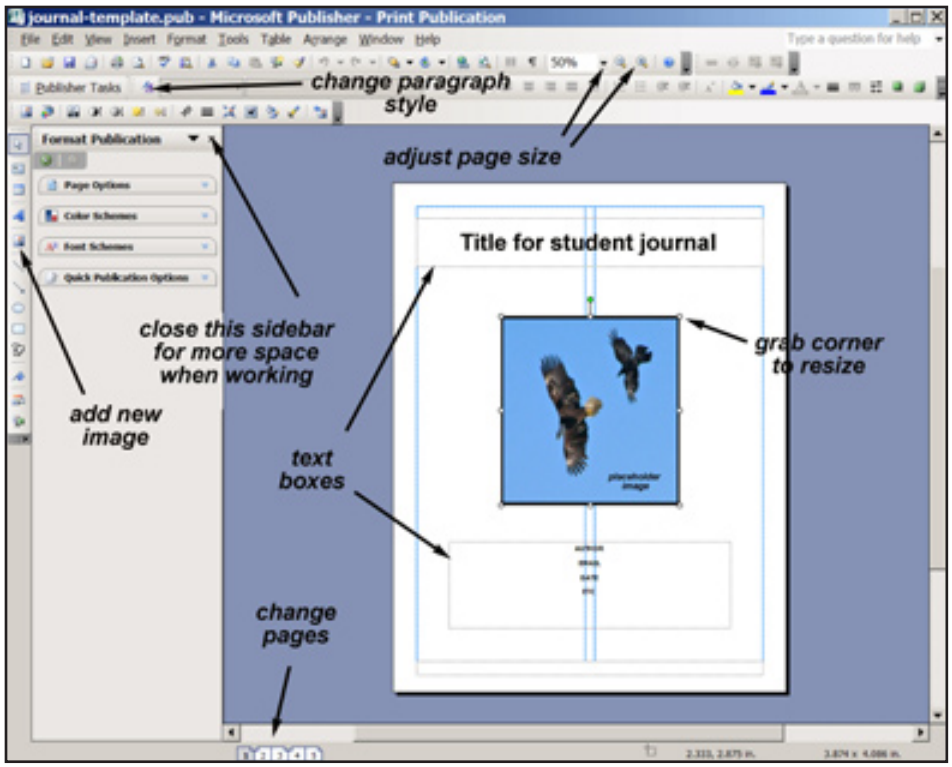
But more than anyone I know, Bob has made his life's work available to the Alaskan public, through his numerous books for adults and children. His most recent books have been self-published, a faster process than working through commercial publishing firms.

Bob–and his frequent coauthors Marge Hermans and Mary Willson–tend to work on focused book projects that span roughly one year: *Along the Mount Roberts Trail, Dragons in the Ponds, Beavers by the Mendenhall Glacier.* These are fascinating accounts, full of the sense of discovery and the excitement of learning. Bob's books are, in a sense, his journals. But unlike most journals, they're exceptionally professional-looking, and available in bookstores throughout the Archipelago.

Let's return now to the concluding recommendation in Greg Streveler's address to Glacier Bay National Park (preceding sidebar):

> *"Develop a system for guiding, accumulating and reporting ancillary observations. This need overarches all the above; without it, they will probably remain just notes buried in notebooks or files."*

Even the few remaining field workers who keep



Cover page of journal template in Publisher, highlighting a few of the most commonly used tools. You can customize the tool bars, removing items you never use.

journals do not typically make them available beyond a close network of friends and colleagues. What we need is some kind of *community journal.*

One name for a community journal is a blog. We'll get to that in a moment (*What would Raven blog?*)

Taking Greg's proposal more broadly, we could ask: "How might the people of Juneau (or any Southeast community) take advantage of new technologies to build a collective relationship with our natural home, growing it from that of deeply rooted cultures who shared such love and wisdom orally? How can we archive and protect this relationship, so that, instead of fading with time, it burns ever brighter?

The technology of communications is evolving so rapidly that even those most immersed in it cannot predict, say, what books will look like in 2050, or whether there will be books at all. In my last book project, one coauthor, growing more interested in audio than writing, submitted his contribution in the form of a CD for the inside-back-cover. Already, you have the option of creating a digital multimedia journal that links to voices of elders, or video of forest exploration. In the future, those linkages will become ever more seamless, so that we scarcely think of them as separate media.

Meantime, the wisdom of place-rooted cultures fades with each passing elder. The important thing is to start making the human connections now; technological connections are only tools. Remember Raven in the tree, watching that photographer. It's not the camera that counts; it's the places and people we see through the lens.

Journaling: the nuts & bolts

The most commonly available program for creating page layouts incorporating graphics is Publisher,[4] included in the Microsoft Office suite. We'll begin with Publisher. If you find that you enjoy layout, and want to do a lot of it, we recommend you check out more advanced programs such as InDesign.

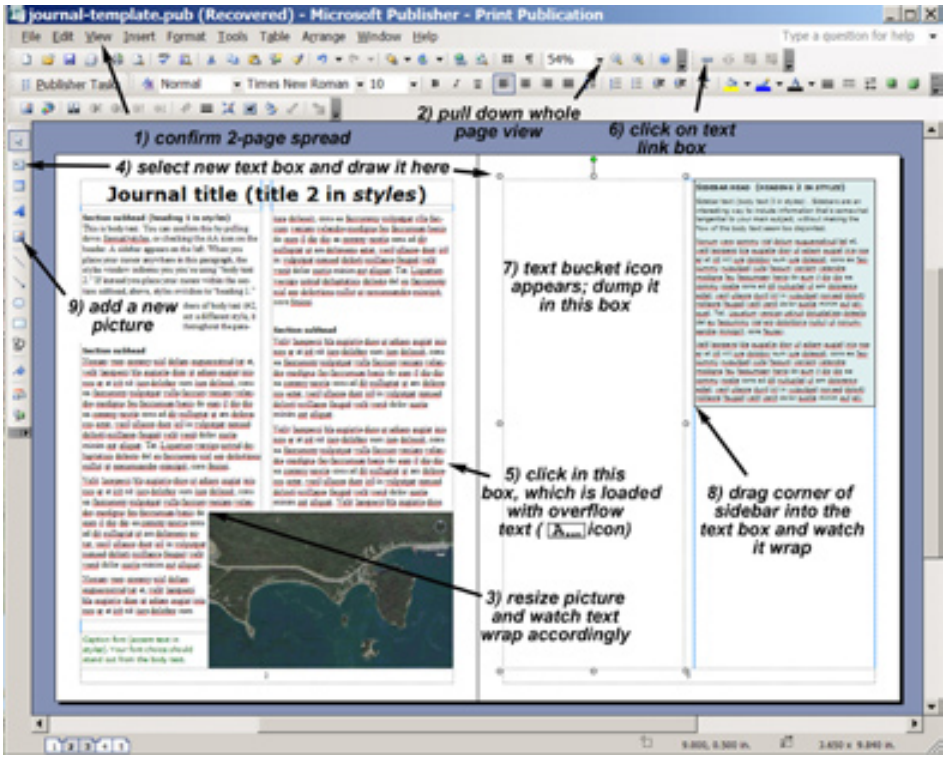
To get started, we've created a template, so that you can launch right into journaling by typing over our placeholder text and images. But first, let's look at a few of the features that distinguish Publisher (and other page layout programs) from basic text editors like Word. After you learn some of these layout skills, please feel free to change the look and style of the journal to suit your own tastes.

Open *journal-template.pub*. Rename it, preferably something including your name. The window above shows the journal's cover page. Unlike Word, the text in Publisher is confined to boxes. (Later, you'll be linking text boxes to make text flow between them.) Click in the upper box, and convert our placeholder text to a tentative title for your journal.

Before you remove your cursor from title text box, check the *AA* icon toward the left side of the header. This opens the *styles* sidebar. It's a good idea to get

4 Creating complex layouts in Word can be a hair-pulling experience. Text-wraps are clunky and pictures keep trying to jump to the next page. Although patient composers do create attractive, multi-page layouts in Word, or Powerpoint, it's like hammering nails with a wrench; these programs were never intended for such purposes.

Even Publisher has its limitations. Professional designers tend to use more powerful (and expensive) programs such as InDesign. Although the UAS computers run InDesign, it takes longer to learn, and if you do learn it, you may find it's not available at your school or on your home computer.



Pages 2 & 3 of journal template. Follow the instructions in the numbered sequence to learn more about how Publisher deals with text wrap, and flow between boxes.

in the habit of using styles when doing page layout. They give your journal a consistent, well-thought-out appearance, and save you from having to remember, for example, what font type and size you last used for a sidebar or subhead. In this case, the style is called title 2. Click on another style and watch the font change accordingly. If none of the title styles suit your taste, you can modify them (pulldown tab on right).

Change the placeholder image by right-clicking on it: *change picture>from file*. Navigate to your journal folder and pick a photo, map, or other graphic.

In the lower text box, drag through the placeholder text, and enter your name, email, date, etc

On the footer there are page icons. Click on the linked pages 2 and 3.

This template is set up in facing-pages mode. This is a handy feature, allowing the designer to envision the publication just as it will appear in printed form, with pages opened, improving layout symmetry. Once you've converted your journal to pdf, you can also view facing pages in Acrobat Reader. For example, check out the following sidebar with a sample Carstensen journal. In facing-pages mode you see the panorama across the entire spread.

Follow the numbered instructions sequentially through the above illustration:

1) Verify that you are in 2-page spread.

2) Choose whole page view (close the space-hogging sidebar on the left if it's still there)

3) Select the picture by the upper left corner and drag it larger across the text. If the text-wrap feature is working, the text should rearrange to flow around the picture box. (For this to work, the text box has to be "on top:" *arrange>text wrapping>square*.)

4) Click the text box tool. With the resulting cross-hair, draw a rectangle to fit the left column on page 3.

5) Click in column 2, page 2. An icon appears at the bottom, informing you that additional text is waiting to be linked to the box you just created. To load it . . .

6) Click on the chain icon on the header. When you hover over the waiting text box, a bucket icon appears.

7) Click, and the text will fill the box. There's still more waiting, as you can see by the overflow icon. Create a new text box beneath the blue-tinted sidebar, and link more text, in the manner you just learned.

8) The sidebar behaves the same as the picture; you can select it and drag the lower left corner into the text box you just created and filled. Text will wrap accordingly. If it doesn't, change the stacking order. With the sidebar box selected, pull down *arrange>order>bring to front*.

9) Finally, add a new picture to this page. Pull down *insert>picture>from file*, or click the picture frame icon as shown. Navigate to a folder where you have images. Select one, and it will appear randomly on the page. Resize it, and establish text flow if necessary with the *bring to front* command.

There's plenty more to learn about Publisher, but this should be enough to get you started. Check out the sample 2-page journal spread in the following sidebar. It may give you some ideas on layout.

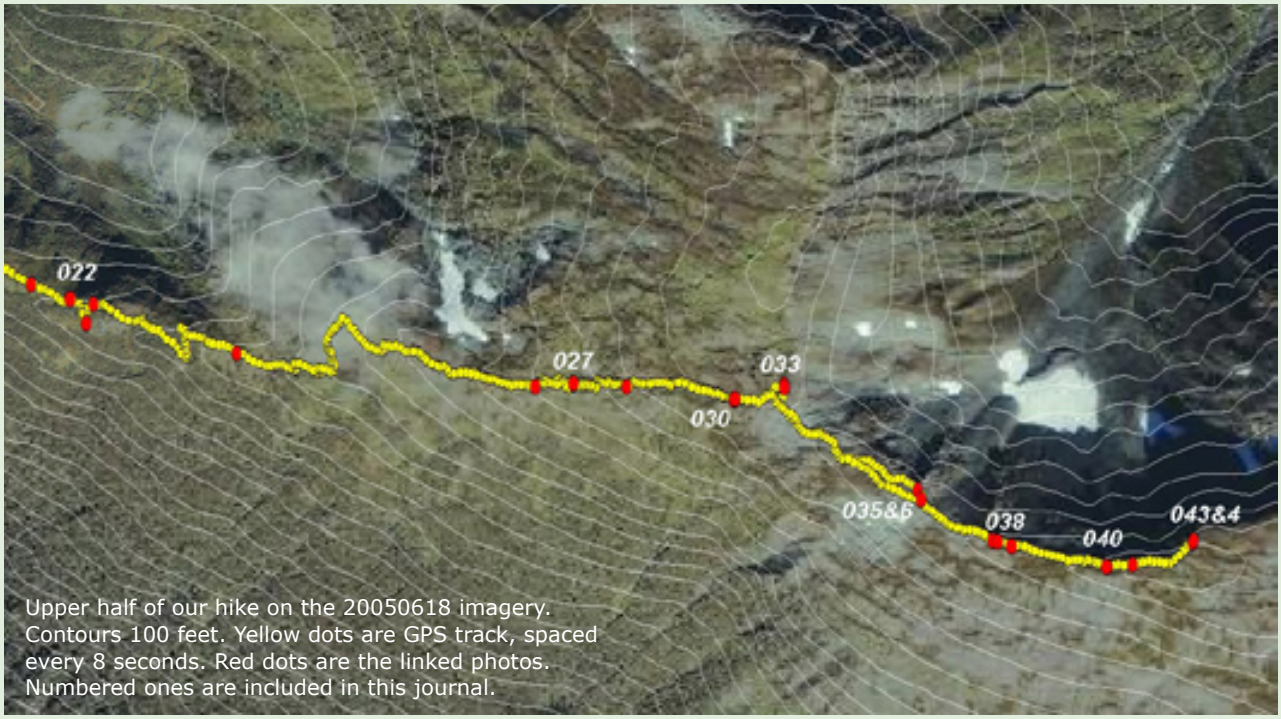
SAMPLE FROM CARSTENSEN JOURNAL, AUGUST 26, 2009

This exerpt shows a variety of map formats, panoramas, and photo annotations

033 Panorama from Gold Ridge. Coverage is shown with black arrows on the topo on facing page. This is about a 90 degree arc, from Olds Mountain at N20°E, to Gastineau Peak at E20°S. Note that you can't see Roberts Peak from this part of Gold Ridge: it's directly behind Gastineau. Bob Armstrong's book has a partial view of Roberts on page 47, that he apparently took by hiking a little farther north out Gold Ridge, until Roberts appears over Gastineau's left shoulder.

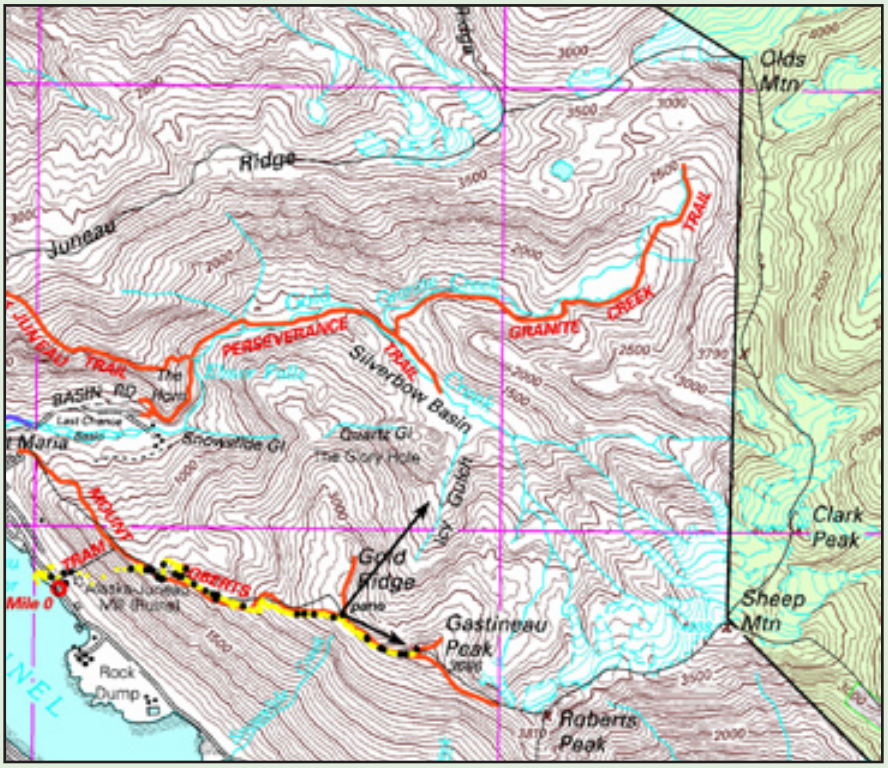
035 In the saddle between Gold Ridge and Gastineau, it gets quite a bit rockier, and there isn't enough soil for subalpine species. Here the classic, low-diversity Southeast heath tundra takes over: mostly *Cassiope* and *Phyllodoce*.

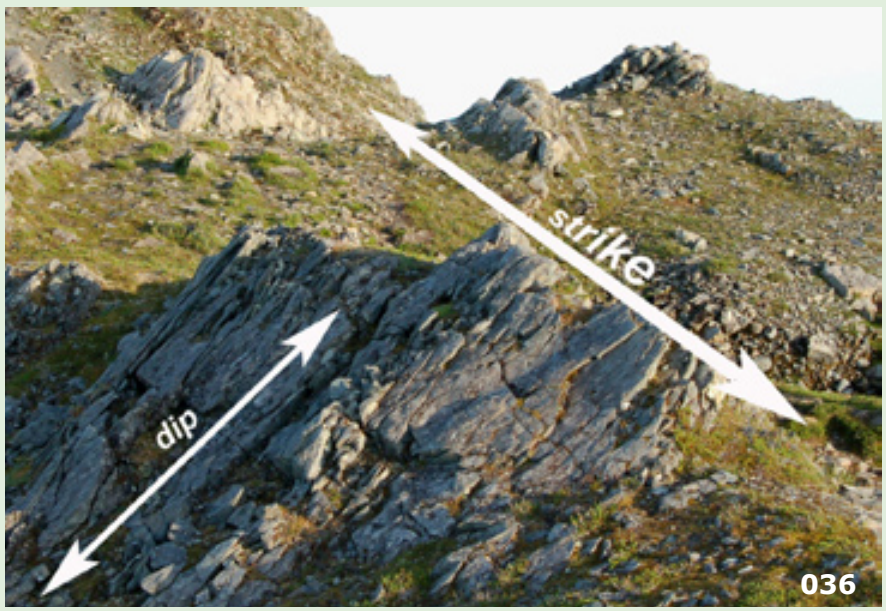
036 Triassic/Permian schist dips strongly



to the northeast, and strikes NW throughout the length of "Roberts Ridge." You can see this plainly even down around the cross area, and in occasional outcrops on the trail below the upper tram landing, but it becomes especially clear as you get to the alpine barrens, where almost no soil obscures the bedrock.

038 Approach to Gastineau summit, 3666 feet. Little vegetation left (north) of the ridge, where the winter cornice develops.





What would Raven blog?

Clay Good

Blogger introduction
If you're taking this course for credit, your assignment is to tell the story of a place and it's cultures in your own blog that you set-up specifically for this course.

You may already be a blogger and use another blog program or service. Feel free to use any other blog program or service you like. Otherwise, try blogger. It's quick! It's easy! And it's free!

Start by going to *www.blogger.com*. Follow the prompts to set up your own blog for this course. There you'll also find a helpful Quick Tour and Video Tutorial along with other useful features - just a click away.

Naming your blog
It can be a surprisingly difficult task to reduce the scope of ideas in this course to a few helpful words. Feel free to be creative and personalize, but please choose a title that somehow directly relates to this course and the purpose of your blog.

Choosing a design template
You will be prompted to select your basic template for your blog. You can change colors, add gadgets, and move elements around to suit your style. Take a little time to play with your blog design. Strive to make it unique, appealing and easy for others to use and read.

Linking your blog to the main course blog
After you save your blog, send an email to the course instructor at *explorealaskablog@gmail.com*.

Be sure to include the blog title and its URL. The URL is your blog's web address. It should look like this, but with your blog's name in it: *http://your blog-namehere.blogspot.com.*

The instructor will add your blog as a link in the Course Participants menu on the main page of the course blog.

A note on privacy
You are not required to use your real name or provide personal information on your blog. Here are some recommendations:

1. Only provide information you wish to make public.
2. You may choose to not display your personal profile when you set-up your blog.
3. You may choose to not include your email on your blog.
4. You may limit or exclude Readers' Comments under the Settings menu for your blog.

Bottom line: Treat your blog as a practical portfolio which you can use professionally.

A few words about better blogging. Among other things, blogging is writing. However, it's writing in a very public way. Unlike a personal journal or diary, blogs are open to the world and should reflect an awareness of a potentially much larger audience.

Sailing the C's to Better Blogging

Clear - Blog writing should be final draft quality. Consider doing your initial writing and editing offline, then copy and paste it into blogger when you're satisfied with its quality.

Concise - Good writing in general is spare, simple and direct. This is arguably even more true for online writing. Try to aim for 3-5 paragraphs per post.

Confidentiality - Carefully consider what kind personal information is appropriate to include in your blog. Blog profile settings offer a wide variety of features to help you best decide who and what others should know about a blog's author.

Comments - Consider how you want others to interact with your blog. From zero comments to an open forum, comments sections add richness as well as liabilities for bloggers. I recommend using moderated comments that are only displayed with your approval.

Jason Ohler's homepage is a good model for friendly, intuitive layout: *http://www.jasonohler.com*

Credible - Personal opinions can have considerable merit, especially when based on personal knowledge and experience. Otherwise, reason, research and resources should be employed to support personal views.

Creative - Blogs are an excellent medium for personal creativity. The themes you choose to feature, the kinds of other media you include, the writing style you employ and the layout and visual appeal you design are just some of the creative arenas for you to explore and master.

Contrast - Visual appeal and readability are enhanced by using contrasting fonts, colors and elements. Selecting the wrong font color may be all it takes to keep someone from reading otherwise brilliant writing.

Clean - Blogs can become cluttered with visually distracting images and features. Keep your blogs visually tidy. Besides looking better, they are more useful for others whom you'd like to visit your blog.

Credit - Good ideas and images deserve and/or require proper credit - even your own.

CRAP

These four design principles have been kicking around for several years. They are simple and easy to use for many tasks, from writing a resume to designing your own website or blog. I borrowed this version from the *DailyBlogTips.com*

The four basic principles
The following is a brief overview of the principles. Although these are discussed separately, keep in mind they are really interconnected, rarely will you apply only one principle.

1. Contrast
The idea behind contrast is to avoid elements on the page that are merely similar. If the elements (type, color, size, line thickness, shape, space, etc.) are not the same, then make them very different. Contrast is often the most important visual attraction on a page.
• *Can you see the difference between your content, ads, headings, body copy and comments?*

2. Repetition
Repeat visual elements of the design throughout the piece. You can repeat color, shape, texture, spatial relationships, line thicknesses, sizes, etc. This helps develop the organization and strengthens the unity.
• *Do you have a consistent theme or brand throughout your site? Do you reuse the same colour, shapes, blockquotes, formatting for all of your articles?*

3. Alignment
Nothing should be placed on the page arbitrarily. Every element should have some visual connection with another element on the page. This creates a clean, sophisticated, fresh took,
• *Does everything line up or have you got things centred, left aligned or out of place?*

4. Proximity
Items relating to each other should be grouped close together. When several items are in close proximity to each other, they become one visual unit rather than several separate units. This helps organize information and reduces clutter.
• *Can you find everything you need on your page easily? What is it that your visitors are looking for?*

Contrast, Repetition, Alignment, Proximity = CRAP

When you gather these four principles of design theory, the appropriate and memorable acronym is CRAP. Sorry about that.

How can you use these 4 design principles?

Look at your website's design and try to identify each singular principle. If you can't seem to identify a part, this is an area that you need to fix up. ie. If your page has no contrast, you must make contrast. If you need some inspiration check up on the many design galleries online.

Captions - Unless it is absolutely obvious, images should have some kind of caption to help make conceptual connections more clear.

Context - Images should relate obviously to the topic at hand.

Connected - Including excellent links and having others link to your blog makes it more powerful and more connected.

References

Connor, C., G. Streveler, A. Post, D. Montieth, and W. Howell. 2009. The Neoglacial landscape and human history of Glacier Bay, Glacier Bay National Park and Preserve, southeast Alaska, USA. The Holocene, Vol. 19, No. 3, 381-393.

Dauenhauer, N., and R. Dauenhauer, eds. 1994. Haa Kusteeyí, Our culture: Tlingit life stories. SeaAlaska Heritage Foundation.

Dauenhauer, N., R. Dauenhauer, and L. Black, eds. 2008. Anóoshi Lingít Aaní Ká: Russians in Tlingit America. The battles of Sitka, 1802 and 1804. University of Washington Press.

DeArmond, R. 1978. Early visitors to Southeastern Alaska: Nine accounts. Alaska Northwest Publishing Company.

DeArmond, R. 1980. The founding of Juneau. Gastineau Channel Centennial Association.

Deur, D and N. Turner, 2006. Traditions of Plant Use and Cultivation on the Northwest Coast of North America. University of Washington Press.

Emmons, G. 1991. The Tlingit Indians. Edited with additions by F. de Laguna. U Washington Press.

Goldschmidt, W., and T. Haas. 1998. Haa Aaní. Our Land: Tlingit and Haida land rights and use. U. Washington Press. (1st edition 1946; revised with Tom Thornton, 1998)

Hope, A. 2003. Traditional Tlingit country: Tlingit tribes, clans and clan houses. Map by SeaAlaska Heritage Foundation and other groups.

Joseph, Phillip. 1967. The history of the Aukquwon. The New Alaskan, December, 1967.

Kunz, Edward, ~1960. Forest and Man. A film by the US Forest Service, narrated by Edward Kunz and KJ Metcalf.

Moss, M. and J. Erlandson, 1992. Forts, refuge rocks and defensive sites: the antiquity of warfare along the North Pacific coast of North America. Arctic Anthropology. Volume 29. No 2. 73-90.

Orth, D. 1967. Dictionary of Alaska place names. USGS professional paper 567. US Gov Printing Office, Washington DC.

Thornton, T. 2008. Being and place among the Tlingit. University of Washington Press, Seattle.

Thornton, T. 2009. Anatomy of a Traditional Cultural Property: The Saga of Auke Cape. The George Wright Forum. Volume 26 Number 1 (2009)

Vancouver, G. 1984. George Vancouver: A voyage of discovery to the North Pacific Ocean and round the world. 1791-1795. W. K. Lamb, ed. London: The Hakluyt Society.

APPENDICES WILL BE ADDED