CULTURAL LANDSCAPE DOCUMENTATION AND REPEAT PHOTOGRAPHY:

LINKING FRAMEWORK AND PRACTICE

by

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DISSERTATION ABSTRACT

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Cultural landscape professionals commonly use an established, framework-based approach to assess distinctive site features. This framework serves to organize and inform the study, reconnaissance, and documentation of tangible features during fieldwork, in which the recording and compilation of photographic records plays a principal role. Successive photo-documentation surveys may build on existing records over time, yet do not necessarily align with the specific location or orientation of established viewsheds in a consistent way. Historical photographs, key primary sources in site research, are often used without benefit of robust spatial analysis. Therein lies an opportunity for practical innovation in applied photo-documentation methods, examined in the context of cultural landscape preservation.

This study proposes and tests a functional interface for the cultural landscape framework with rephotographic techniques, through which practitioners may systematically analyze and reoccupy the camera station (vantage point) of a historical source photograph. Literature survey and previous experimentation informs the development of a method for extending the usefulness of cultural landscape characteristics through photographic source analysis. This method was implemented in a criteria-based selection of early 20th century photographs of the Elbridge W. Merrill Collection, preserved at Sitka National Historical Park, resulting in the rephotography of associated viewsheds located on Baranof Island, Alaska. This work presents theoretical context,

source selection and analysis design, and case study examples, and it also considers selected instances of rephotographic work present in recent cultural landscape practice. The study concludes with field-based conceptual and practice guidance for current and future practitioners. Overall, this work voices a case for continued innovation in photographic approaches to cultural landscape documentation as those practices contend with change over time.

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This work reflects a fundamental reliance on numerous individuals over the course of several years. In light of the string of complications and delays rippling from COVID-19, I am thankful for their patience and, in some cases, clemency. A host of educators and scholars have had lasting influence; meanwhile, their contributions are essential, and humbling. Chief among these is Robert Melnick, whose wellspring of advice, engaging candor, and friendship has marked an enduring centerline for navigating cultural landscape research. Dissertation faculty committee members Mark Eischeid and Marsha Weisiger both sacrificed time, energy, and sanity along the way, contributing adroit and gracious criticism. Rick Minor, no less, agreed to join the committee with enthusiasm, adding his deep field expertise and editorial acumen.

Dave Hulse, Bart Johnson, and Rob Ribe each contributed unvarnished critique and encouragement in framing and refining the topic and literature surveys. Chris Enright shared much-needed empathy at several junctures, a reminder that departmental collegiality is no less a matter of kindness. Kenny Helphand shared several elusive references from his library, not to mention authoring the work that heightened my curiosity for historical landscape scholarship (and UO) more than a decade ago. Laurie Matthews has likewise been generous in sharing her work and expertise, no less so with camaraderie and an infectious sense of curiosity. Shaun Haskins clarified numerous administrative questions, while Shaymond Michaelson and Brian Conley fielded my inquiries pertaining to research travel protocols. Colleagues in the Cultural Landscape Research Group, too, have put up with my fluctuating bandwidth over several years.

As an affirmed cheechako on Baranof Island, the generosity and kindness shown by a number of Alaskans remains memorable. Staff at Sitka Fine Arts Camp, in particular Drew

Sherman and Christina Van Den Hoogen, helped navigate lodging arrangements and a variety of local introductions in and around the historic Sheldon Jackson campus. Staff at the Sheldon Jackson Museum and Sitka History Museum, including Jackie Fernandez-Hamberg, Jenya Anichtchenko, and Hal Spackman, dutifully fielded what must have seemed like trivial questions pertaining to E.W. Merrill's equipment. Although we remain unacquainted, I am also indebted to Rebecca Poulson, whose work continues to sow a preservation ethic in the Sitka community. Artists in residence, including Jorge Mario Agudelo Echeverry, shared a welcome camaraderie at North Pacific Hall, all the while exchanging ideas and offering insightful questions about archival and field methods.

Professionals in the National Park Service have shouldered more than their fair load in this era of cultural resource management. The additional time, consideration, and informational guidance provided, both by those in the Alaska Regional Office in Anchorage (AKRO, now Region 11) and Sitka National Historical Park (SITK), were significant aids in the learning curve of this study. In particular, Grant Crosby, Senior Historical Architect, shared firsthand insight pertaining to elevation details and oblique perspectives of the reconstructed St. Michael the Archangel Cathedral. Brinnen Carter, SITK Archaeologist and Interdisciplinary Program Resources Manager, shared insights specific to sites photographed by Merrill, advice about fieldwork planning and timing, and furnished riparian gear suitable for Indian River and Tongass conditions. Tracy Lacqua, serving a detail as the Park's Museum Curator, facilitated crucial access, both to archive-grade resolution scans of Merrill's plate negatives and to the surviving plates in their vault habitat. Seasonal ranger and former search and rescue (SAR) diver Henry Larsen lent enthusiastic support as I sought to assess and confirm potential viewshed positions along (and in) Upper Indian River channels, together with fieldcraft wisdom regarding grizzlies

during the salmon spawn. Susan Dolan, managing the bureau's Cultural Landscapes program, has offered both helpful reckoning of inventory progress and continued affirmation.

Investigation of various sites beyond NPS purview was only possible through the cooperation and keenness of others still. Project manager Jeremy DeTemple lent assistance at Sitka National Cemetery, and shared firsthand knowledge of landmark detail for other locations. Jerry Jacobs, plant manager at Petro-Marine, likewise paused amid a busy workweek to grant property access and shuffle vehicles at Sitka Harbor. City & Borough Public Works staff Rob Dahlquist and Chuck Armer provided unique, practical assistance in coping with unanticipated elevation change near Crescent Harbor. Marie Young, docent at St. Michael's, provided help in accessing a particular viewpoint overlooking Lincoln Street, and also shared her own, personal connection to Merrill's work (noting at least one matrilineal ancestor among those Native Alaskans recorded in his portraits). Steve Pflispsen, proprietor of Artist's Cove Gallery on Lincoln St., appears in the rephotographic imaging of the cathedral site; his business space today occupies much of the picketed yard seen in the foreground of the S-06 source plate.

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GLOSSARY

camera station: The geographic location corresponding with specific camera position and orientation, determined according to rephotographic analysis of source images, background knowledge of camera equipment, and supporting sources. See *viewpoint*.

cultural landscape: A place understood as the product of historical [human] and cultural processes, showing evidence of the historical interaction between users and their physical environment over time. These places are frequently considered historically or culturally significant and may vary widely in location, size, and age.

cultural landscape characteristic(s): Conceptual typology used to organize a systematic approach to landscape observation and documentation, according to thirteen specific categories of descriptive attributes present in many sites. Procedurally, each characteristic should be understood as a unique, iterative step in the practice of observation, assisting the researcher in the scrutiny of dynamic places.

cultural landscape feature(s): Discrete landscape elements that embody the cultural or historical distinction of a given site.

CLI: Cultural Landscape Inventory

CLR: Cultural Landscape Report

CLRG: Cultural Landscape Research Group, University of Oregon

DOI: U.S. Department of the Interior (not to be confused with doi—digital object identifier)

EWMC: Elbridge W. Merrill Collection (a SITK holding)

NPS: U.S. National Park Service

NPS-SITK (SITK): Sitka National Historical Park (alpha code unique to each park unit)

NRB: National Register Bulletin

parallax: Photographic effect produced by the behavior of light, wherein the location or orientation of an object appears to change when viewed through a camera lens from differing vantage points. Considering the effects of the parallax principle enable the researcher to compare apparent distances between reference points in an image or viewfinder.

reference feature: Landscape element identified through preliminary analysis of source images, used to locate, correct, and orient a camera station and lens for rephotography. Reference features are often selected as distinct among a variety of documented cultural landscape features.

repeat photography (rephotography): Methods and techniques comprising the reproduction of specific, existing photographic views, typically over substantial intervals in time. For the purposes of this study, the term refers to the recorded digital image resulting from repetition of the source plate (original view, i.e. digitized).

ROC: Russian Orthodox Cemetery

S-00: Selected source identifier (e.g. S-12: Booth Fisheries Building site), also used to distinguish field sites associated with source views.

study sites: The physical location and setting associated with primary source photographs selected by research design, identified and analyzed as a part of the research design.

SITK_00000: Park collections identifier (e.g. SITK_25603: view of Sitka National Cemetery)

SJC: Sheldon Jackson Campus

SJM: Sheldon Jackson Museum

SJS: Sheldon Jackson School

SMROC: St. Michael's Russian Orthodox Cathedral

source selection: Primary source images selected for field application during the preliminary analysis of the E. W. Merrill Collection photographic plates, through the use of designed criteria and randomization.

VA: U.S. Department of Veterans Affairs

view: A type of finite visual connection existing between points in or around the landscape, which can be recorded photographically. This usage differs slightly from the definition typically understood in cultural landscape paradigm, which indicates expansive or panoramic prospects of a wide range of vision, which may occur naturally or deliberately. (adapted from NPS, 1998)

viewfinder: The optical (or electronic) component of a camera that enables the photographer to view and compose the image framed and shaped by the lens. Both types are used within the scope of this study to orient, frame, and review the composition of site images.

viewpoint: Specific vantage point at ground level, from which a viewer (i.e. photographer) assesses and records a specific view of a physical site.

viewshed: A range of vision delineated within a site from a given viewpoint or camera station, often extending outward as a conical or wedge-shaped zone in space. Within the specific context of rephotography, this range will at least partially coincide with the orientation of a historical source view.

vista: Specifically delineated type of view, as framed by location, setting, and orientation of camera lens and sensor. The image frame creates a controlled prospect using a discrete, linear range of vision. Views and vistas can be defined by the composition of other landscape characteristics, such as a lookout structure or a view framed by vegetation. (adapted from NPS, 1998)

CHAPTER 1

VALUING REPHOTOGRAPHY FOR CULTURAL LANDSCAPE PRESERVATION

1.1 Introduction

In recent decades, development of the cultural landscape framework has fostered the systematic documentation of distinct landscapes in North America, including many codified within the U.S. National Parks Service (NPS) domain of historic preservation. Since the 1960s, scholars and expert practitioners have more closely examined the interplay of human activity and physical environment as an overt source of cultural and historic significance; the synthesis of the cultural landscape framework remains linked with visual evaluations of distinctive landforms and attributes. Rooting that significance within visible landscape characteristics has sustained the role of photographic technology in researching, assessing, and managing these sites over time. The study of archival photographs in site-based application remains, appropriately, a core component of cultural landscape preservation practice.

Field surveys conducted at ground level rely heavily on photographic recording, instrumental in the documentation of a cultural landscape's definitive characteristics. As a visual record of a physical space in time, field photography is both a rational and efficient mode of assisting future management decision-making, in turn implemented through the active design of preservation treatments. Photographic viewsheds are widely accepted as a consistently factual representation of an actual landscape setting, and therefore comprise evidentiary sources for the landscape record. When recorded onsite, these photographs may also be understood as touchstones for recurring investigation, as a means of supplementing historical maps and manuscripts, and facilitating study of how landscape attributes change over time. A relationship between archive and site is implicit but not consistently implemented in practice. Dominated by

diverse and varying approaches, photographic practice stands to benefit from a closer, more systematized alignment with viewsheds informed by historical research.

To that end, this study proposes a conceptual and operational overlap between the cultural landscape framework and rephotographic practice. The existing format of the cultural landscape framework, an established approach to landscape attribute identification and classification, and landscape-situated rephotographic techniques share compatible foci in feature analysis and recording. This common ground provides for a potential synergy as cultural landscape framework characteristics inform rephotographic field application, as was explored in initial concept mapping at the outset of research. Image analysis may be organized around landscape feature assessment, while identifying and systematically matching views shape a more robust understanding of a site's change over time. Chapter 2 addresses the theoretical situation for the constituent parts of this overlap, delineated through representative literature surveyed within cultural landscape historiography and rephotographic publications, as well as precedents shown in Chapter 3. This serves as the basis for a method in selecting and utilizing historical photographic images to be used in field research, as addressed in Chapters 4 and 5.

In repeat photography (also known as rephotography, used hereafter), we can harness the orientation of historical photographic views to more closely guide the work of photo-documentation amid contemporary conditions. Rigorous photographic research methods being intrinsic to the practice of sound cultural landscape management, Chapter 2 proposes a conceptual interface between the existing cultural landscape framework and landscape rephotography.

Artistic applications include intriguing examples of rephotographic practice, as with the work of Utrecht-based photographer Erwin Jacobs, photo-journalist Marisa Scheinfeld, or Sergey

Larenkov. This study hews, however, to techniques that are rooted in an empirical mode of research, which also invoke analytical principles of repeatability and measurability. These will be explored chiefly in Chapter 4 as a function of the methodological design and implementation. In a cultural landscape setting, the assessment of primary sources as the basis for site-specific rephotography reflects a qualitative orientation in research aimed at supporting growth of operational and conceptual knowledge among cultural landscape practitioners. An interface is proposed and demonstrated between cultural landscape characteristic types (conceptual classification system) and historical photographic detail (descriptive strategies).[1] This interface is fundamentally interdisciplinary, with implications reaching into the fields of historical landscape architecture, historic preservation, and cultural resource management.

1.2 Problem Statement, Background, Thematic Gap, and Dissertation Intentions

Despite the proliferation of digital imaging for landscape documentation, an opportunity exists to more systematically align the use of photographic archival research with field recording techniques. A firsthand survey of 165 cultural landscape inventories in the NPS Pacific West Region made apparent that many such records exhibit a lingering disconnect between historical photographs and the work of recording contemporary views within the same sites. More closely aligning these two photo-visual source types provides an opportunity to expand the role of rephotography in developing and augmenting the practice of site documentation.

Growth since 1998 of a nationwide cultural landscape-specific database in the NPS Cultural Landscape Inventory (CLI) illustrates a widely accepted professional standard in the

[1] Per Stahlschmidt, Simon Swaffield, Jørgen Primdahl, and Vibeke Nelleman, *Landscape Analysis: Investigating the Potentials of Space and Place* (New York: Routledge, 2017), 180-182.

scrutiny of numerous defining landscape elements in detail; many such elements comprise tangible, discrete features and distinguishing views, seen both in historical and contemporary images.[2] These records dominate the compilation of, and reference to, historical views pertaining to each site, showcasing the fruit of practitioners' archival research efforts into historical photographs. Multiple iterations of this process typically accumulate over several decades, as a function of prescribed survey and inventory updates, as well as periodic, iterative edits. For purposes of ongoing use, inventory records are, in part, the product of photographic vision—cultural landscape features recorded, assessed, and retrieved through the lens. Little overt guidance exists, however, pertaining to the utility of historical photographs in the specific context of cultural landscape fieldwork. Unsurprisingly, their analysis and on-site use remains subject to an array of approaches, with varying rigor.

In this setting, period photographs, especially those from the late 19th century or early 20th century, continue to serve as a core source in delineating baseline landscape conditions. These images often depict configurations of cultural landscape features which may no longer be available in another medium. This is particularly so in cases where historic features have been altered beyond recognition, have been moved, or are no longer extant (Fig. 1-1). As such, period photographs retain both liminal and potential qualities for assessing and understanding a cultural landscape; they offer a graphic analog for historical site features which have disappeared from space yet not from factual record. Moreover, these sources are intrinsic to the substance of Cultural Landscape Reports (CLR), the flagship vehicle for historical and contemporary

[2] Robert R. Page, Jeffrey Killion, and Gretchen Hilyard, *National Park Service Cultural Landscape Inventory Professional Procedures Guide,* rev. ed., Olmsted Center for Landscape Preservation (Washington, D.C.: NPS Park Historic Structures and Cultural Landscapes Program, 2009), Section 7-6 - 7-10 [Sidebar 28], https://irma.nps.gov/DataStore/DownloadFile/513401.

documentation, providing a baseline for recommending interventions in the site itself.[3] These interventions—also known as treatments—are, in effect, designed responses to change, tailored to each site and specific features, and plied in conjunction with a framework implemented by the U.S. Department of the Interior since 1992.[4] Evaluating site features for treatment through source photograph comparisons with source photographs underscores an important role for the study of the images themselves in cultural landscape preservation methodology.

Figure 1-1. Archival photograph of Pajarito Club site, c.1915, White Rock, NM, vicinity. The view offers a typical primary source used in CLI research, in this case developed for Pajarito Site, Manhattan Project National Historical Park. With the exception of the log-framed cabin,* far right*, built features dating to this period of development, and shown in this photograph, are no longer extant. (Los Alamos Historical Society / Peggy Pond Church Collection, NPS / CLRG, 2019)

[3] Robert R. Page, Cathy A. Gilbert, Susan A. Dolan, A Guide to Cultural Landscape Reports: Contents, Process, and Techniques (Washington D.C.: NPS Park Historic Structures and Cultural Landscape Program, 1998), 46-47.

[4] Charles A. Birnbaum and Christine Capella Peters, *The Secretary of the Interior's Standards for Historic Properties with Guidelines for the Treatment of Cultural Landscapes* (Washington, D.C.: U.S. Department of the Interior, National Park Service Heritage Preservation Services, Historic Landscape Initiative, 1996).

In contemporary practice, evaluating change over time requires particular attention to historical source views. Existing documentation practices, including historically oriented methods promoted by National Park Service's Cultural Landscape Program's Landscape Lines technical series, must contend with ambiguity implicit in site research. Here, a disconnect between static archival images and diverse site recording choices is a factor, as seen in the organizational separation of historical source photographs from those recorded to illustrate detailed descriptions of current conditions, both implicit in prescribed CLI and CLR procedures.[5] Variations among specific location and orientation of both historical and contemporary views are common in photo documentation, reflecting a lingering disconnect between the application of archival- and field-centric research techniques. Inconsistent camera position, with respect to specimen trees may suggest, for instance, overstated changes in apparent growth. In the case of roads or social trails, similar inconsistency can impart confusion as to perceived changes in alignment or width, suggesting physical alteration rather than simply variation in the photographer's vantage point. Variations noted in spatial proximity chosen among camera positions and features also tend to illustrate inconsistent levels of detail over time (Fig. 1-2), thereby complicating detailed comparisons otherwise useful in assessing time-based phenomenon such as grade change, masonry repairs, or structural alteration—what design scholars Mohsen Mostafavi and David Leatherbarrow have illustrated as the need to distinguish between actual and apparent modification or replacement of traditional construction elements, proportions, and forms.[6] Such variations may inadvertently introduce confusion or indecision as

[5] Page, Killion, and Hilyard, 71-79; 81-83; Page, Gilbert, and Dolan, 67.

[6] Mohsen Mostafavi and David Leatherbarrow, *On Weathering: The Life of Buildings in Time* (Cambridge, MA: Massachusetts Institute of Technology Press, 1993), 16-17. See also Stewart Brand, *How Buildings Learn: What*

to how landscape features looked in a particular period, based on differences in relative scale, perspective, and distance.

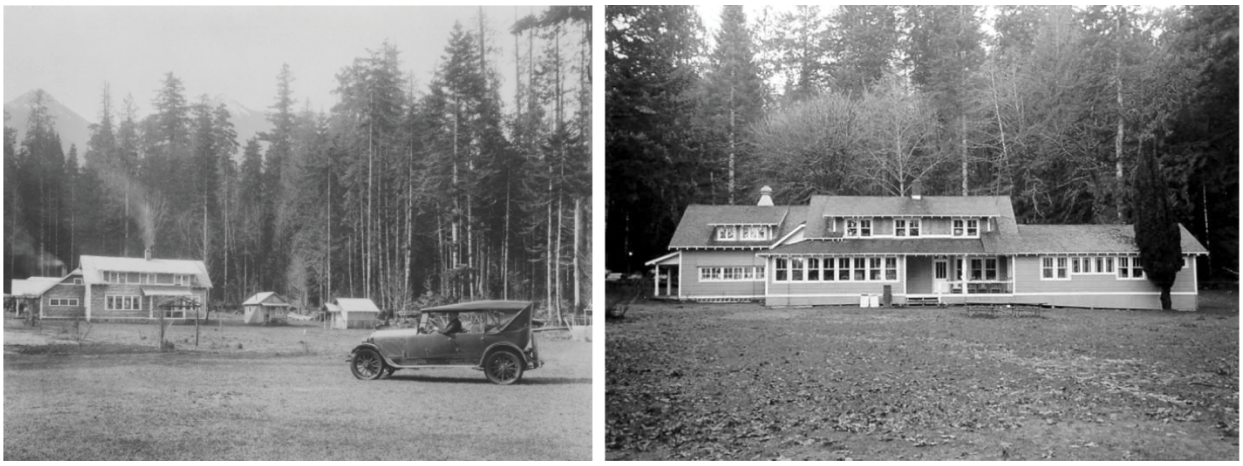

Figure 1-2. Example of unaligned viewpoints used in the documentation of spaces and features comprising the historic Rosemary Lodge at Crescent Lake, WA. The image on the left shows a pre-1920 archival photograph included in the site's Cultural Landscape Inventory (CLI); the view at right was recorded by landscape preservation assessing the site roughly 80 years later. Such differing perspectives tend to complicate accurate comparisons in scale, feature detail, and topography. (NPS-OLYM 220/2406A; NPS-CCSO, 1999)

Ultimately, the disconnect should be seen as an implicit opportunity for innovation. The present situation provides fertile ground to more carefully utilize archival sources in cultural landscape record-making through a closer examination of rephotographic practice, as will be discussed in the following chapter. This same opportunity, moreover, reflects the mutual interest of historic preservation and design professionals in responding to the continued, and often cumulative, effects of environmental change and "cultural weathering" at work in the morphology and pathology of these distinctive sites.[7] Recognizing this also acknowledges the importance of detailed graphic stewardship in the digital age, where the intrinsic appeal of rapid photographic recording techniques and bulk storage capacity remains in tension with the need for

Happens After They're Built (New York: Viking, 1994); and Nora Lefa and Pablos Lefas, *Buildings Used: Human Interactions with Architecture* (New York: Routledge, 2020).

[7] Kingston Wm. Heath, *The Patina of Place: The Cultural Weathering of a New England Industrial Landscape* (Knoxville, TN: University of Tennessee Press, 2001), 177, 183.

spatially explicit source records. Descriptive captions, informative file labeling, and other geospatial cues bolster the utility of photographic sources as repeatable and reliable guides. Closer alignment between historical and contemporary views, achieved through a systematic analysis, can facilitate a more effective continuity in the photo-documentation record. The ability to redress this alignment is within reach.

CHAPTER 2

CONCEPTUAL FOUNDATIONS

2.1 Cultural Landscape Preservation Principles

The term "cultural landscape" can be traced to German theorist Otto Schlüter, who coined the term (*Kulturlandschaft*) by 1906. Schlüter's use refers to the unified product of a distinctive landmaking process embedded within geographic science and theory—landscape envisioned as a lasting, visible artifact of human culture.[8] Scholars widely attribute its anglicization to the work of geographer Carl Ortwin Sauer (1889-1975), fostering its American influence in the Berkeley School of human (cultural) geographers through the late 20th century. Drawing on interests in geology, botany, and agriculture, as well as a mid-19th century German interpretation of *kultur* (e.g. civilization or human enterprise), Sauer examined the disposition of physical land regions through a lens of human culture, theorizing how peoples act to shape their surrounding regions and locales. This work, encapsulated in *The Morphology of Landscape* (1925), has become seminal for its concept of a distinctive, place-based land phenomena, contrasted with environmental determinism.[9] While its full outgrowth reaches well beyond the

[8] Otto Schlüter, *Die Ziele der Geographie des Menschen* (München: R. Oldenbourg, 1906); John Leighly and William W. Speth, "Emergence of Cultural Geography," *Yearbook of the Association of Pacific Coast Geographers* 57 (1995): 171, doi:10.1353/pcg.1995.0015. By the early 1890s, too, Frederick Jackson Turner's now canonized historical arguments also infer that, in exerting influence on North American settlement areas, elements of physical geography might be seen as a defining attributes of those cultural locales. Another reading of Turner suggests that his thesis enables an understanding of residual land features which reflect changing processes. See Turner, "The Significance of the Frontier in American History," in *Annual Report of the American Historical Association* (1893): 197-227.

[9] Carl O. Sauer, *The Morphology of Landscape* (Berkeley: The University of California Press, 1925). Transliteration of "Kultur" should not be confused with wartime propagandistic connotations imbued during 1914-18, despite their chronologic proximity to Sauer's writings. For extended discussion on historical modulations of the term in several languages, see Raymond Williams, *Keywords: A Vocabulary of Culture and Society* (London: Croom Helm, 1976).

scope of this discussion, Sauer's legacy intertwines with the concept of identifying visible artifacts of cultural activity over time. Ultimately, his work also provides a benchmark for landscape-focused research in historical sites.

During the past several decades, NPS programming has labored to secure a holistic interface between (1) its mandate to preserve historically significant sites and (2) the need to address emergent ecological values.[10] Rooted in the codified "dual mandate" of the agency's own inception, this interface underscores the fact that cultural landscape preservation guarantees no fixed trajectory for sites and features.[11] For instance, how might the protocols for preserving a historic farmstead respond to the need to manage invasive plant species harbored by associated grazing practices? The perpetuation of divisive dichotomies of "nature vs. culture," where human agency is held apart from all other biological or geomorphological processes, have often complicated the matter. These tensions are inherent in preservation efforts directed at "stopping the [historical] clock," as landscape historian Ethan Carr has observed, or "freezing a landscape in a particular era."[12] Together with architecturally dominant modes of preservation practice,

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[10] Melody Webb, "Cultural Landscapes in the National Park Service," *The Public Historian* 9, no. 2 (Spring 1987): 77-78, 80; Susan Bratton, ed., Proceedings: *Conference on Science in the National Parks,* Volume 4, Vegetation Change and Historic Landscape Management (Fort Collins, CO: Colorado State University, 1986), 72-73. The mandate for documenting cultural landscapes, including as a function of survey and inventory protocols, can be found in the following public directives: National Historic Preservation Act of 1966, 16 U.S.C. 470h-2(a)(1)); Executive Order [3 C.F.R.] 13287: Preserve America (2003), Sec. 3(a) and 3(c); *Secretary of the Interior's Standards and Guidelines for Federal Agency Historic Preservation Programs*, Standard 2 (Sec. 110 (a)(2)(A), Management Policies (2006), part 5.1.3.1; NPS Cultural Resource Management Guideline, Release no. 5 (1997) 22. Together, these provisions embody a preservation-oriented mandate framed in the National Park Service Organic Act of 1916, 16 U.S.C. §1.

[11] NPS Organic Act of 1916, 16 U.S.C. §1.

[12]Ethan Carr, "The Noblest Landscape Problem: Thomas C. Vint and Landscape Preservation" in *Design With Culture: Claiming America's Landscape Heritage,* Birnbaum and Hughes, eds. (Charlottesville, VA: University of Virginia Press, 2005), 167; Richard Grusin, "Remediating Nature," in *Culture, Technology, and the Creation of America's National Parks* (New York: Cambridge University Press, 2004), 165, 172; Jillian P. Cowley, "Moving Toward Integrated Resources Planning," in *Rethinking Protected Areas in a Changing World: Proceedings of the 2011 George Wright Society Conference on Parks, Protected Areas, and Cultural Sites,* Samantha Webb, ed. (Hancock, MI: George Wright Society, 2012), 64.

photo-documentation methods have tended, however unintentionally, to downplay the processes of change over time. Preservation practice must continue to grapple with this recognition, appreciating that dynamic places necessitate ongoing, periodic assessment and inventory using non-destructive methods.

Acknowledging landscapes as historically significant properties became an intrinsic charge for what would emerge by the late 1990s as the NPS Cultural Landscapes program, as a part of the Historic Landscapes Initiative, an agency effort to establish best practices for landscape preservation. The kernel of cultural landscape as a specific designation and construct first became evident in the late 1970s through widening attention given to rural properties associated with U.S. National Park holdings. A pilot project was tasked with the study of rural historic districts comprising historical agriculture and mining land areas in Buffalo National River, Arkansas.[13] The resulting assessment provided a benchmark for rethinking longstanding cultural resource management attitudes toward historic districts and properties.[14] These attitudes had been shaped by architectural and art-historical assumptions about landscape—what landscape historian William Tishler lamented as "token embellishment" of the built environment—largely marginalizing the elements such as vegetation or topography as a locus of analysis.[15] A clarion call of sorts, the work in Buffalo National River advocated a vision to more

[13] Melnick, Steven L. Stover, Daniel C. Sponn, *Identifying, Evaluating, and Managing Cultural Landscapes in the National Parks* (Washington, D.C.: U.S. Department of the Interior, National Park Service, 1982). See also Melnick, "Re-envisioning the Cultural Landscape Report: Straddling the Nature/Culture Divide at Pecos National Historical Park," *Forward Together: A Culture/Nature Journey Towards More Effective Conservation in a Changing World*, edited by Nora Mitchell, Brenda Barrett, and Anabelle Rodriguez (San Francisco, CA: US/ICOMOS, 2019), 1-18.

[14] Melnick, "Cultural Landscapes: An Emerging Concern for Resource Management," *Trends in Cultural Resource Management* 20, no. 2 (1983): 24-26.

[15] William H. Tishler, "Landscape: An Emerging Historic Preservation Resource," *Bulletin for the Association of Preservation Technology* 11, no. 4 (Winter 1979): 9.

consciously situate the processes and products of vernacular land uses in cultural resource preservation protocols.[16]

Landscape photography figured heavily in the project team's approach and findings, which stressed the products of ongoing change as an integral part of historic properties. Evidence of change, its authors showed, should be grasped as a visible, defining factor in distinguishing the sites' significance as cultural resources.[17] This evaluative model anticipated an arc of new site studies and technical literature over the following decade, culminating in successive early versions of a framework for landscape characteristic assessment and establishing a transferrable knowledge base for cultural landscape documentation and evaluation.[18] It also reflected the developing legal environment which vouchsafed cultural resources, such as the then-recent amendment to the 1966 National Historic Preservation Act (NHPA), recognizing the appropriateness of professional expertise in preservation projects found beyond agency employ.[19] Assertion of photographic survey methods also reaffirmed a core charge within the 1935 Historic Sites Act, which first enshrined documentation-driven research as a strategic preservation measure.[20]

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[16] Melnick, Sponn, and Saxe, 1984; *Landscape Lines* 3.

[17] Melnick, Sponn, and Saxe, 1984; Melnick, "Protecting Rural Cultural Landscapes: Finding Value in the Countryside," *George Wright Forum* 3, no. 1 (Winter 1983): 15-30.

[18] Charles A. Birnbaum, *Preservation Brief 36: Protecting Cultural Landscapes: Planning, Treatment, and Management of Historic Landscapes* (Washington, D.C.: NPS, 1994).

[19] P.L. 96-515, 94 Stat 2997.

[20] P.L. 292; Barry Mackintosh, "Historic Preservation as Public Policy: The Historic Sites Act of 1935" (April 1973), History Division, National Park Service. Although the extent to which "Historic Sites" can be understood as a landscape-inclusive preservation term in 1935 remains uncertain, the precedent for documentation-focused public stewardship approaches remains apparent.

Beyond the immediate NPS sphere, influences on the cultural landscape framework came in the early development of organizations like the Alliance for Historic Landscape Preservation (AHLP), whose members first met in 1978 and coalesced around their respective experiments in professional practice. The George Wright Society, founded in 1980, also emerged as an interdisciplinary network emphasizing creative and thoughtful commitment to heritage conservation in protected lands. Values reflected in these organizations are similarly entwined at the root with an intellectual legacy propagated by early conservationist George Perkins Marsh (1801-1882). Marsh linked inquiry into land attributes with a distinct human responsibility—the assertion of an ethic based in accounting for *and* actively managing landscape environments.[21] Still other notable drivers came through the scholarship of geographers like Peirce F. Lewis, Donald Meinig, Philip Wagner, Wilbur Zelinsky, and Fred Kniffen, each parsing and illustrating the mutual interaction of people and their environment at regional and local scales.[22] This work continued to inflect the cultural landscape paradigm through explorations of what Meinig called "the nuances of visual relationships" at work in American places, as well as an appreciation for its "physiognomy"—the capacity to identify unique configurations of distinguishing features.[23]

Best practices for the investigation of cultural landscapes crystalized with publication of the multi-volume *Landscape Lines* series. Intertwined with guidance on graphic and investigative tools, these publications disseminated among practitioners an evolved version of the framework as a core body of cultural landscape *characteristics*. Each characteristic distinguishes a

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[21] George Perkins Marsh, *Man and Nature; or, Physical Geography as Modified by Human Action* (New York: Scribner, 1865), 73-74, 103, 332.

[22] Instructive examples include Wagner's *The Human Use of the Earth* (New York: The Free Press, 1960); Zelinsky, *The Cultural Geography of the United States* (Englewood Cliffs, NJ: Prentice Hall, 1973), and Kniffen, "Folk Housing: Key to Diffusion," *Annals of the Association of American Geographers* 55 (1965): 549-577.

[23] Meinig, 43, 45.

typological category of land system, pattern, or form, and is in turn exemplified through one or more specific cultural landscape *features*. The current iteration of cultural landscape characteristics (1997) encompasses thirteen discrete categories: Natural Systems and Features, Cultural Traditions, Land Use, Topography, Spatial Organization, Cluster Arrangements, Circulation, Buildings and Structures, Vegetation, Views and Vistas, Constructed Water Features, Small-Scale Features, and Archaeological Sites. As a cohesive set, these characteristics are flexible and transferable among many different geographies and cultural contexts (including coastal or maritime environments) in permutations uniquely suited to each site. Characteristics may also be applied to multiple and differing historical periods and site conditions, as a means of assessing change over time. A more detailed explication of characteristics accompanies the following chapter.[24]

Cultural landscape characteristics together embody a thinking tool and, in doing so, invoke questions for practitioners concerning distinctive features as well as applied techniques in documenting them. For instance, how should those processes and products that comprise a site be distilled in the work of recording the site? Might the same approach also clarify *how* changing conditions are documented? Does identifying and mapping photographic viewpoints (or camera stations) more carefully distinguish or align historical and contemporary perspectives? As a set, cultural landscape characteristics can be understood as an approach designed to facilitate comprehensive documentation where conceptual overlaps in classification are preferable to documentation gaps.

This framework's development reflects an organizational evolution over a decade and a half alongside that of digitized recordkeeping. Successive updates (Fig. 2-1) mark a prevailing

[24] Refer to Table 2.

trend in stewardship thinking to emphasize the primacy of discrete, tangible features. A possible byproduct of database-driven assessment practices driving the advent of a nationwide Cultural Landscape Inventory (CLI) software database (1998), the same trend is especially apparent in the winnowing of framework components after 1990. This winnowing specifically articulated the historical or cultural significance of environmental processes and perception. Overall, these developments represent something of a double-edged sword in practice: historic features are easier to account for as discrete elements in a computation-based system, but tracking them this way also carries a risk of inculcating (or perpetuating) the notion that sites can be seen and evaluated as arrangements of revered objects. Practitioners are wise to heed and weigh the ongoing merit in reviewing and reassessing cultural landscape sites as visibly dynamic, shifting places. Although intangible processes are not the focus of this study, they remain a factor in continued attempts to recognize and inventory what geographer Kent Ryden designates the "concrete expressions of culturally sanctioned forms."[25]

Today, the cultural landscape framework embodies a cornerstone of site-specific documentation and assessment methods. The framework fundamentally pinpoints and illuminates those landscape attributes as integral to a place's historic or cultural significance. Its applications delineate a distinct process of looking—whether in the field or on a remote basis—to help formulate and update comprehensive assemblage of distinctive features. Articulated through spatially explicit inventory and reporting alike, the framework serves as the scaffold for comparisons among historical and current conditions. No less significantly, framework characteristics are also a principal driver of organizing, illustrating, and articulating treatment planning and design—active responses to the effects of change over time. In short, active cultural

[25] Kent C. Ryden, "Why Your World Looks the Way It Does and Why It Matters: Cultural Landscapes as Visual Culture," *Visual Arts Research* 32, no 2 (2006): 73.

landscape preservation practice is framework-driven, providing a consistent and transferrable means to examine a wide assortment of features on a case-by-case basis.

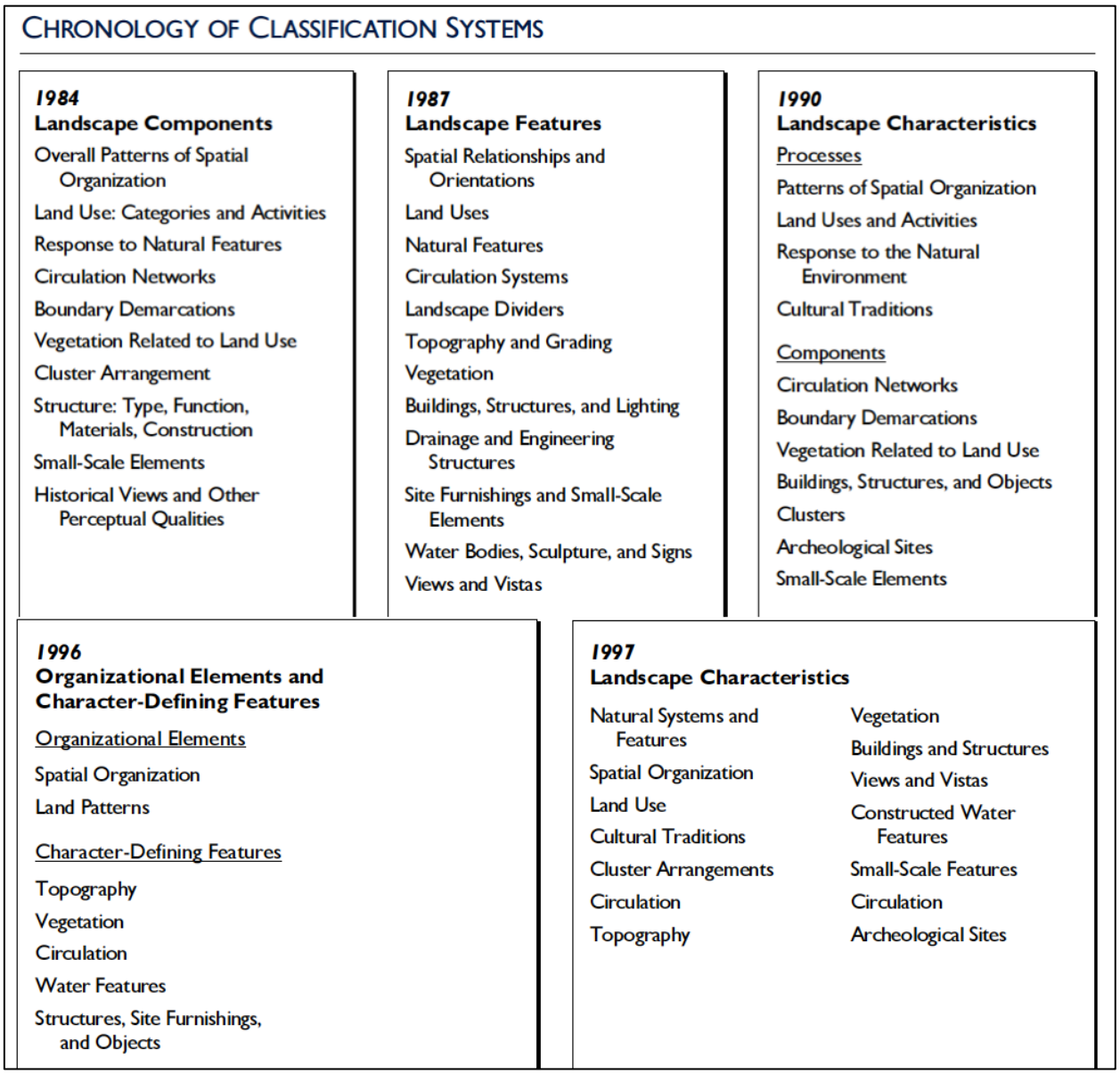

Figure 2-1. Cultural Landscape Characteristic classification patterns, 1984-1998, as published in* Landscape Lines 3.** ***[note: a typographic error appears in the 1997 iteration, twice listing Circulation. (See also Melnick, Sponn, and Saxe, 1984; NRB 18; and NRB30.)

In their current format, characteristics also foster a degree of ambiguity. "Views and Vistas," for example, has come to mean "broad" or "discrete, linear" ranges of vision in space,

based on the particular orientation of a given viewshed, while generalizing, rather than specifying, the configuration of its constituent elements in space. Suitable documentation of Natural Systems and Features, meanwhile, while designated thematically or conceptually, realistically necessitates photographic viewsheds chosen to encompass broad ranges of space, in order to include and ground the visual scale of extensive landscape elements such as upland prairie networks above the Redwoods or river valleys in the North Cascades. In effect a separate class of views or vistas, this overlap suggests merit in developing conventions to more clearly spatialize view types for purposes of consistency, particularly where historical and contemporary viewsheds differ.

While it has remained a stable organizational system, the cultural landscape framework is not ultimately a static professional discipline. Current research continues to benefit from cross-disciplinary thinking at varying physical and spatial scales. For example, recent fieldwork conducted at Pecos National Historical Park incorporated military terrain analysis techniques (KOCOA system) in an attempt to better address Civil War-era battlefield terrain.[26] KOCOA-based techniques, while transferrable across a wide range of terrain, invoke types and functions of land uses and topography that are much more detailed than those found in typical cultural landscape site surveys. As another example, micro-scale vegetation management techniques shared by plant biologists have inflected photo-documentation work with Santa Fe Trail rut segments associated with Fort Union National Monument. These cases have inspired repeated discussions among cultural resource specialists seeking opportunities to more effectively

[26] United States Marine Corps, *Small-Unit Leader's Guide to Weather and Terrain,* MCRP 3-11.1B (Washington, D.C.: U.S. Department of the Navy, 2002), sections 201-312.

incorporate characteristic-driven analysis as a shared language among multiple professional fields; in this, room for continued innovation is apparent.

Cultural landscape documentation practice retains a largely photo-visual approach to site description and assessment. Its guiding framework remains flexible, inclusive, and stable, providing a scaffold to further develop and spatialize photo-documentation techniques. As an outgrowth of the landscape architecture field, it links an overarching graphic and geospatial mode of inquiry with active design responses to change over time. Such links underscore what Richard J. Alesch argued is fundamentally a "continuum"-based approach to preservation stewardship of historically significant landscapes, stressing the need for an evolving record oriented to distinguishing features, rather than a single, fixed period and record set.[27]

2.2 Photo Documentation Tools and Techniques

Historic preservation research practices continue to grapple with the long-term variability of conditions inherent in cultural landscapes. These places embody a vital "fluidity and a sense of process," Julie Riesenweber asserts, easily outflowing a single, definitive moment in time.[28] Considering "fluidity" of conditions reflects the need to continually update existing photographic records in consistent intervals as a record connecting a broader arc, rather than a single, finalized statement of conditions. The continued stewardship of these records, therefore, necessitates a

[27] Richard J. Alesch, "Cultural Landscape Management at Boxley Valley, Buffalo National River," *Proceedings of the Conference on Science in The National Parks,* vol. 4, *Vegetation Change and Historic Landscape Management*, ed. Susan Bratton (Fort Collins, CO: Colorado State University, 1986), 72-75.

[28] Julie Riesenweber, "Landscape Preservation and Cultural Geography," in *Cultural Landscapes: Balancing Nature and Heritage in Preservation Practice*, ed. Richard Longstreth (Minneapolis: University of Minnesota, 2008), 29.

systematic approach designed to engage evolving visible conditions over time.[29] Periodic, iterative surveys of conditions facilitate the possibility of comparative study among the features that mark the tangible products of cultural landscape processes. Ground-level photographic techniques are an integral part of each survey, making it efficient to record as well as retrieve visible evidence as a part of field-based assessment methods.

Fundamentally, cultural landscape site documentation infers a *consistent* ability to record, retrieve, and analyze documentation data (evidence) over time.[30] Through this principle, the landscape photographs extend for the viewer what cultural geographer J.B. Jackson considered "a repository of memory." Adopting a similar logic, the visible configuration of long-lasting features in a cultural landscape itself comprises a historically valuable source of insight. In documenting landscape features at periodic intervals, the viewer makes consistent transactions in historical knowledge—both deposit and withdrawal.[31] As with an archive of manuscripts, a site's holdings expand and morph as time advances, underscoring the utility of lasting index. Geographer Donald W. Meinig contends that visualized landscape elements, layered and interwoven, enable one to access this virtual repository as time passes, stressing the value of photo-visual recording as a mode of comparison.[32] Trees mature, lean, and fall; roadways establish cuts in hillsides; riverbanks shift; repeated visits compact a path between cottage and

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[29] Melnick et al, *Climate Change and Cultural Landscapes: A Guide to Research, Planning, and Stewardship*, Cultural Landscape Guidance Documents (Eugene, OR: University of Oregon, Cultural Landscape Research Group, 2017), 23.

[30] Cathy Gilbert, "Cultural Landscapes and the New Technologies," *The Public Historian* 13, no. 3 (Spring 1991): 110, 112.

[31] Marc Treib, "The Measure of Wisdom: John Brinckerhoff Jackson (1909-1996)," *Journal of the Society of Architectural Historians* 55, no. 4 (December 1996): 381.

[32] D.W. Meinig, "The Beholding Eye: Ten Versions of the Same Scene," in *The Interpretation of Ordinary Landscapes* (New York: Oxford University Press, 1979), 43.

privy. As products of such processes, these features offer distinct, consistent wayfinding points in time as well as space. They can be observed as they are photographed over time.

The ingenuity and dedication of landscape managers notwithstanding, the extent and pace of change complicates the stewardship of consistent photographic records for many cultural landscapes.[33] Compounding the issue are practical inconsistencies in the availability of existing documentary sources, along with an implicit lag in cultural resource monitoring techniques, compared with those practiced with respect to natural resources. Further stressors on the continuity of inventory documentation—including personnel shortages, training limitations, and maintenance backlogs—may also emerge from policy and budgetary changes in agency administration.

Ground-level photography, appropriately captioned and assessed as a facet of site context, is a familiar tool in the inventory toolkit for cultural landscapes. Iterative image surveys are part and parcel of this process, furnishing visual touchstones for future remote reference and decision-making. As a form of visual data collection, such primary sources may reinforce, or in some cases delineate, baseline conditions for ongoing assessment—a process heightening some aspects of historical clarity in connecting a series of past, present, and potential future moments. This approach echoes geographer and historian David Lowenthal's assertion of the fundamental merit of landscape comparisons made across time and space.[34] Within the cultural landscape paradigm, ongoing photographic survey of a landscape at ground level can also serve as an interdisciplinary nexus for researchers with a diverse range of background and training,

[33] This obstacle also suggests a portent for knowledge lost with turnover in institutional memory, as the timeline for newer cultural landscapes outstretches career or generational bounds.

[34] David Lowenthal, "Nature and Morality from George Perkins Marsh to the Millennium," *Journal of Historical Geography* 26, no. 1 (2000): 5.

including but not limited to historic preservation, landscape architecture, geography, archaeology, and public history.[35] Each has a vested interest in updating knowledge of current site conditions, particularly when that knowledge can be situated geospatially.

At the same time, the medium's typical place within the Cultural Landscape Inventory (CLI) documentation model continues to reinforce the problematic notion of historical stasis. Decades and even generations of conditions are all too frequently collapsed into a single frame, often reproduced at lower resolution, in turn implying the notion of vegetation, structures, and even people held in suspended animation. Images from successive surveys do not necessarily interrelate with the visual perspective of previous inventory views, moreover, despite the emphasis this tool places on consistently describing (or representing) detailed landscape attributes and their physical context through time.

Dependence on individual photographs from a single period can obscure landscape processes, however unintentionally. In viewing a selected moment in time, it is all too common to conceive of an inert place, existing in fixed time.[36] Landscape processes are fundamentally difficult to depict, especially compared with discrete physical features, given the brief duration of actual conditions recorded in any single view. This is particularly so when the representative image is created, retrieved, or curated simply to illustrate subjective written landscape history and evaluation without the benefit of previous or successive views. The subjective viewer, moreover, brings additional preconceptions and biases to the image.[37] Without a sufficient

[35] Birnbaum, *Preservation Brief 36*, 2; Mark Klett, Ellen Manchester, and JoAnn Verburg, *Second View: The Rephotographic Survey Project* (Albuquerque: University of New Mexico Press, 1984), 40.

[36] Maggie Roe, "Exploring Future Cultural Landscapes," 241-269 in *New Cultural Landscapes*, ed. Maggie Roe and Ken Taylor (New York: Routledge, 2014), 246.

[37] Anne C. Godfrey, *Active Landscape Photography: Theoretical Groundwork for Landscape Architecture* (Abingdon, UK: Routledge, 2020),

framework specific to photographic resources, we miss a valuable opportunity to reveal a sense of the rate and range of variation of cultural landscape changes underway. Likewise, deprived of well aligned, systematically oriented photographic methods, ongoing surveys of landscape conditions exacerbate a lingering incongruence between field observation and primary source research (Fig. 2-2). In turn, historical baselines may become more abstract (i.e. less visually apparent, or more speculative), exacerbating what John A. Jakle has viewed as landscape historians' ongoing, Kantian difficulty with integrating constructs of geographic space and historical time in the physical environment.[38]

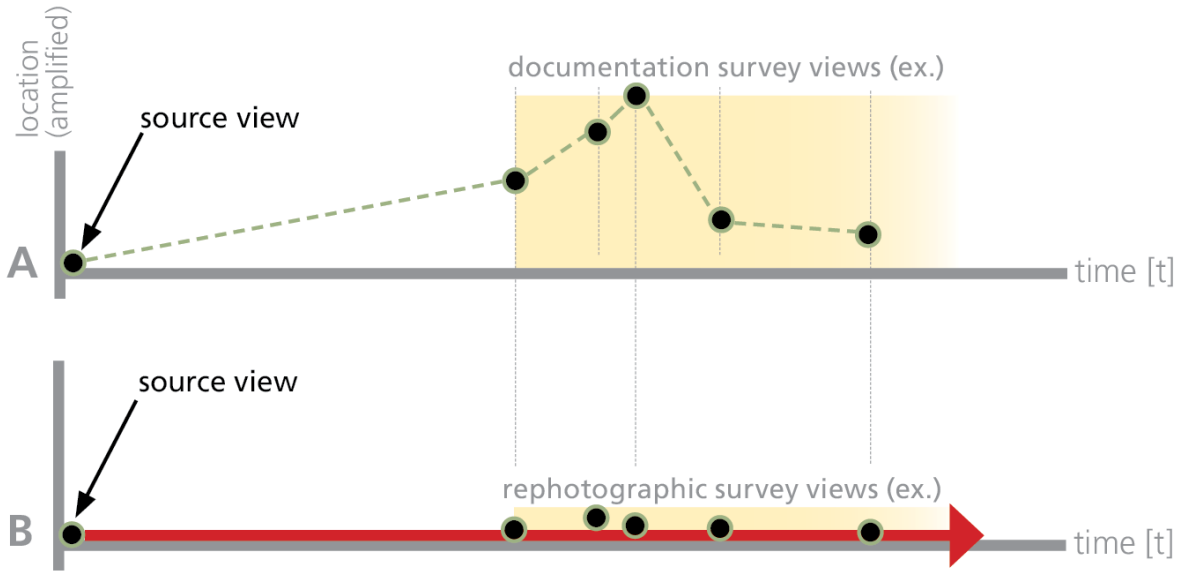

Figure 2-2. Concept diagram illustrating comparison between general historical survey documentation viewpoint locations (A), determined subjectively by various photographers, and rephotographic approaches attempted at similar intervals in time (B). Comparison suggests that more closely aligning documented views with reference sources has a potential impact on the spatial consistency of how viewsheds are chosen. (Dotted line suggests widely disparate differences among intervals based on numerous possible factors.)

[38] John A. Jakle, "Time, Space, and the Geographic Past," *American Historical Review* 76, no. 4 (October 1974): 1087; Patricia O'Donnell, likewise, asserts cultural landscape site research to be "increasingly drawn toward the recent, obscure, and intangible;" see O'Donnell, "Cultural Landscape Preservation: An Evolving Field," *Landscape Journal* 35, no. 2 (2016): 204.

The photographic component of CLI documentation retains an object-oriented approach to recording landscape information, and understandably so. As a relative latecomer to the family of cultural resource preservation by the 1990s, its visual emphasis on distinctive features (an extension of architectural history methodology) adopted prevalent techniques concerning what and how to document. This aspect of information gathering is also a byproduct of early 20th century American preservation theory as filtered first through prescriptions of the Historic Sites Act (1935), and, after 1966, by the National Register of Historic Places (NRHP)—a distinctly art-object-focused conception of property documentation.[39] The advent of the Historic American Building Survey (HABS, 1933-present) as a jobs-creation program for design professionals reinforced the same schema, depicting elite architecture as the focus of historic places (Fig. 2-3), as did Carnegie-funded regional pictorial surveys (1929-1940).[40] Similar methods remain apparent today in the Historic American Landscape Survey (HALS), a sister endeavor to HABS managed by NPS since 2000. These initiatives underscore the still-present temptation to expect that a landscape, as historian Dell Upton suggests, "offers itself to us as a transparent totality, coherent and final," as opposed to one set of conditions.[41] In attempting to prioritize a single, authoritative record for a significant place, a perhaps unintended consequence is one of

[39] 16 U.S.C. 461; The NRHP was authorized with passage of the National Historic Preservation Act of 1966 (Public Law 89-665; 54 U.S.C. § 300101 - 320303; PL 113-287). See also Laura A. Watt, Leigh Raymond, and Meryl L. Eschen, "Reflections: On Preserving Ecological and Cultural Landscapes," *Environmental History* 9 (October 2004): 636.

[40] Catherine C. Lavoie, "The Role of HABS in the Field of Architectural Documentation," *APT Bulletin: The Journal of Preservation Technology* 41, no. 4 (2010): 22-23.

[41] Dell Upton, "Seen, Unseen, and Scene," 174-179 in *Understanding Ordinary Landscapes*, eds. Paul Groth and Todd W. Bressi (New Haven, CT: Yale University Press, 1997), 176; Genevieve P. Keller and J. Timothy Keller, "Preserving Important Landscapes," 187-222 in *A Richer Heritage*, ed. Robert E. Stipe (Chapel Hill: University of North Carolina, 2003), 196.

suggesting a halt to the arc of time at a given point in cultural memory, while elevating selective elements of the built environment.

Figure 2-3. Typical early HABS site photo-documentation view, recorded 1934, highlighting the Harold C. Brooks [Jabez Fitch] property in Marshall, MI. As a master site record, on its own, this type suggests an overarching, fixed disposition for site features, together with a marginalization (or omission) of landscape features as mere architectural framing elements. Together, these bely the inherent dynamism and historical diversity of the site. (HABS MI-27-18; NRIS 91002053; LoC HABS MICH,13-MARSH,1-)

Oversimplifying the approach to recording cultural landscape features may result in a similar abstraction, as in grouping textual analysis concerning historical structures *with* buildings (as opposed to organizing them with respect to landscape functions). The result is a tacit encouragement for a reader to infer the role of structures like retaining walls first as built objects—or "large-scale artifacts," as planning scholar Randall Mason notes—and only

thereafter as components of broader landscape process.[42] The visual approach proposed in this study acknowledges the importance of recording landscape features within their physical surroundings, maintaining a view of their place in the evolution of viewsheds over time.[43] This is also a means to conceive of rephotography as a potentially potent teaching and interpretive resource—both in supporting practitioners' ongoing professional growth and in teaching ourselves to look more carefully, engendering a more detailed inquisitiveness about historic places.

Effective cultural landscape stewardship, additionally, faces the broad need to update and maintain systematized source views in light of the continued impacts of changing climate. This need is timely, consistent with a science-based preservation ethic, and speaks to the possibilities of careful, continued reinvestment possible through aligning emerging knowledge for future condition assessments and treatment strategies.[44] For many cultural landscapes, the range of historical variation in conditions remains something of an abstraction in existing inventory

[42] Randall Mason, review of *A Richer Heritage: Historic Preservation in the Twenty-First Century*, ed. Robert E. Stipe (Chapel Hill: University of North Carolina Press, 2003), in *CRM: The Journal of Heritage Stewardship* 3, no. 1 (Winter 2006), 89; Robert R. Page, Jeffrey Killion, and Gretchen Hilyard, *National Park Service Cultural Landscape Inventory Professional Procedures Guide* (Washington, D.C.: National Park Service, Park Historic Structures and Cultural Landscapes Program, 2009), 7:6-10. The accepted format for landscape characteristic organization represents the latest version of a developing framework for cultural landscape documentation, in progress since the early 1980s; see also Page, Cathy R. Gilbert, and Susan A. Dolan, *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques* (Washington, D.C.: National Park Service, Park Historic Structures and Cultural Landscapes Program, 1998), 53, and "Landscape Lines 3: Landscape Characteristics," Parks Cultural Resources, 1984, 2-4.

[43] Melnick, "Cultural landscapes and climate change: protecting resources that matter in a future of uncertainty," 223-240 in *New Cultural Landscapes,* eds. Maggie Roe and Ken Taylor (New York: Routledge, 2014), 224-225.

[44] Melnick et al, *Climate Change and Cultural Landscapes: A Guide to Research, Planning, and Stewardship* (Eugene, OR: University of Oregon, Cultural Landscape Research Group, and National Center for Preservation Training and Technology, 2017). https://irma.nps.gov/DataStore/Reference/Profile/2242975

documentation, without the benefit of systematic parallels made between or among photographic periods.[45]

How, then, to strengthen the process of gathering useful photographic data for future service in preservation of cultural landscapes? The basic obstacle concerns (1) bridging the gap between typical use of cultural landscape photography as a resource for text illustration or representation and its implicit analytical value; and (2) pursuing opportunities to more consistently and strategically monitor documented viewsheds as a part of long-term systematic site assessment. Herein lies an opportunity to employ a repeatable monitoring tool appropriate to human scale for the needs of cultural landscape analysis. The following chapter acknowledges these challenges as sensible prospects in strengthening continuity in how conditions in cultural landscape sites are revisited and recorded over time, while advocating for the broader analysis of selected historical views in reinforcing cultural landscape preservation practice.

2.3 Rephotography Principles and Precedents

Rephotography encapsulates practices used to identify and replicate existing photographic views at their place of origin. Sometimes dubbed "then-and-now" or "before-and-after" photography, rephotography comprises the process of reconstructing the original camera lens perspective associated with an existing photograph, reoccupying the viewshed, and recording emergent conditions. In turn, comparisons are made possible between pairs (or series) of views from differing periods, evaluating changes in their shared subject(s). Together, these multiple views reflect the principle that, while not all changes shaping cultural landscapes are visible or accessible through photographic analysis, a wide variety do indeed affect tangible

[45] This became increasingly clear amid the co-design of photograph survey methods for a region-wide climate study of NPS case studies; see Melnick et al, *Climate Change and Cultural Landscapes.*

features in an observable way. As a deductive approach to historical knowledge, rephotography is suited to the visual study of landforms and features in their geophysical context over time.

Rephotographic techniques rely on the successful identification of multiple tangible landmarks as reference cues, which serve to align (or re-align) three-dimensional space and two-dimensional record. The alignment marks what is, in effect, a trans-dimensional function for visual evidence gleaned from historical landscape photographic sources. Reference cues provide potentially lasting connection points between image and site. Archaeologist-photographer Kitty Hauser has recognized this in her appraisal of changing conditions over time: "To preservationists, modernity tends to be an irremovable barrier… [instead] it is a barrier that can be seen through, over, or round," Hauser insists. "The past may no longer be so evident in the modern landscape, but its increasing invisibility does not make it [visibly] un-recoverable."[46]

Photographic records of *in situ* features, principally, facilitate knowledge recovery, although not of the physical landscape itself. Instead, they offer a means to enact a virtual revival of a recorded historical configuration of features. Their functional value therefore extends beyond depicting or archiving simulacra of a lost or waning past; rather, these images may serve to anchor and sustain a site-specific viewership amid change over time, in turn better equipping their stewards and practitioners to contend with the implications of change over time. These records are distinguished through the specific capacity to be linked or embedded with overarching geographic or topographic records and viewsheds, as well as additional descriptive data, based on the identification of discrete features. As such, they manifest a somewhat liminal nature, delineating a viewshed location associated with past and present spaces alike. This supports a potential symbiosis with the established framework used to analyze cultural

[46] Kitty Hauser, *Shadow Sites: Photography, Archaeology, & the British Landscape, 1927-1955* (New York: Oxford University Press, 2007), 5-6.

landscapes (Fig. 2-4), which likewise foregrounds the analytical function of distinct points in space and time. Both perspectives adopt a view of landscape that places inherent visual emphasis on spatially persistent (if not fixed) attributes over time, at varying degrees of precision or classification.

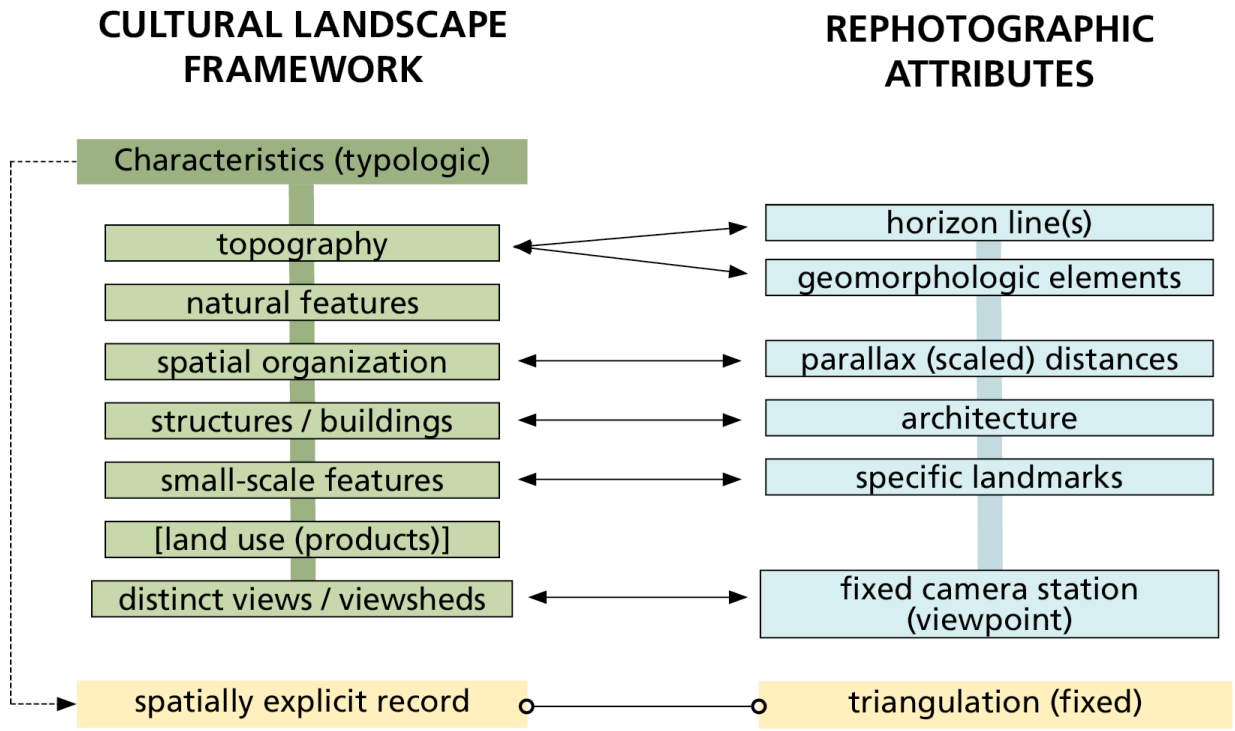

Figure 2-4. Diagram illustrating shared conceptual linkages between cultural landscape characteristics (feature types) and visible landscape attributes used to site and orient rephotographic camera stations (viewpoints). Interface of these two approaches to landscape elements comprises the root for methodology presented in Chapter 4. (Framework characteristics are derived from NPS,* Landscape Lines 3*.)

A representative survey of literature relating to this linkage illuminates four overarching concepts: (1) rephotographic pairings provide compelling tools for interpreting many types of visible change—both broad and subtle; (2) scope and methodology have largely been predicated either on sources linked to specific, known landmarks *or* abductive analyses of historical survey collections; (3) techniques for locating and orienting camera stations vary broadly in method and rigor; and (4) rephotographic surveys foster protocols relevant to continued cultural resource

monitoring. Surveyed literature draws from a variety of landscape-inflected topics and methods, including but not limited to geomorphology, alpine ecology, resource management, and public history.[47]

Rephotography provides intriguing, compelling means to investigate various visible products of landscape change—at viewshed scales and historical intervals both broad and subtle. The earliest use may have emerged with the high-altitude surveys of Swiss geologist Sebastien Finsterwalder (1862-1951), who reconstructed viewpoint perspectives through geometric projection in order to examine changing alpine and glacial conditions.[48] Meteorologist James Rodney Hastings and botanist Raymond Turner relocated nearly a hundred viewsheds for *The Changing Mile* (1965), which sought to examine and illustrate ecological change in the Sonoran Desert in light of grazing, fire, and climatic phenomena at varying scales.[49] This pioneering work would later prompt a follow-up study, returning to and demonstrably expanding on the previous physical scope and "coarse photogrammetric" methods following a nearly forty-year interval, as well as forming the basis of an ongoing repository in the Desert Laboratory Repeat Photography

[47] Selected examples include M. Torre Jorgensen, Gerald V. Frost, Will E. Lentz, and Alan J. Bennett. *Photographic Monitoring of Landscape Change in the Southwest Alaska Network of National Parklands;* NPS/AKRSWAN/NRTR-2006/03 (Fairbanks, AK: ABR, 2006); Robert H. Webb, Diane E. Boyer, and Raymond M. Turner, *Repeat Photography: Methods and Applications in the Natural Sciences* (Washington, D.C.: Island Press, 2010); Nicolette Bromberg, "The Wisconsin Sesquicentennial Rephotography Project," in *Wisconsin Then and Now* (Madison, WI: University of Wisconsin Press, 2001); Thomas R. Vale, "Vegetation Change and Park Purposes in the High Elevations of Yosemite National Park, California," *Annals of the Association of American Geographers* 77, no. 1 (March 1987), 1-18.

[48] Sebastian Finsterwalder, "Eine Grundaufgabe der Photogrammetric und ihre Anwendung auf Ballonaufnahmen," *Abhandlung der Akademie der Wissenschaften* [Bayern] 2, no. 22 (1903): 225-260; "Geleitworte zur Karte des Gepatschferners," *Zeitschrift für Gletscherkunde* 16 (1928): 20-41.

[49] James R. Hastings and Raymond M. Turner, *The Changing Mile: An Ecological Study of Vegetation Change with Time in the Lower Mile of an Arid and Semiarid Region* (Tucson, AZ: University of Arizona Press, 1965); Robert H. Webb et al, *The Desert Laboratory Repeat Photography Collection—An Invaluable Archive Documenting Landscape Change,* FS 2007-3046 (Tucson, AZ: USGS, 2007).

Collection.[50] Soon after, hydrologists Robert Webb and Stanley Leake, along with Turner, narrowed and extended their geographic focus to examine the loss of riparian ecosystems, using segments of the Colorado River Basin to locate and determine survey methods.[51] By contrast, in one of the most recent precedents, design educators Michael W. Seymour and Peter R. Summerlin illustrate comparisons among urban landscape planting specimens at a residential site scale.[52]

Many studies adopt a predetermined geographic scope to identify variously compiled sources ranging among photographers and periods, as seen in a United States Forest Service (USFS) analysis of 45 pre-1925 records for "time-lapse fixed point photography," each documented in the public lands of Oregon's Blue Mountains area. This assemblage encompassed both private and public holdings, ranging through personal, botanical, county library, and USFS holdings.[53] Similarly, selected coastal views, documented by allied war photographers following the Normandy invasion, indicate apparent rephotographic analyses shaped around the confidential analysis of pre-war tourist postcard images by intelligence officers.[54] Other studies are predicated on adopting already-coherent source collections, which in turn dictate the location

[50] Raymond M. Turner, Robert H Webb, Janice E. Bowers, and James Rodney Hastings, *The Changing Mile Revisited: An Ecological Study of Vegetation Change with Time in the Lower Mile of an Arid and Semiarid Region* (Tucson, AZ: University of Arizona Press, 2003).
[51] Robert H. Webb, S.A. Leake, and Raymond M. Turner, *The Ribbon of Green: Changing Riparian Vegetation in the Southwestern United States* (Tucson, AZ: University of Arizona Press, 2007).

[52] Michael W. Seymour and Peter R. Summerlin, "Evidence and Deception: A Historic Photo-Analysis Method for Landscape Studies," *Landscape Journal* 36, no. 2 (2017): 91-109.

[53] Jon M. Skovlin, Gerald S. Strickler, Jesse L. Peterson, and Arthur W. Sampson. *Interpreting Landscape Change in High Mountains of Northeastern Oregon from Long-Term Repeat Photography,* PNW-GTR-505 (Portland, OR: United States Department of Agriculture, U.S. Forest Service, Pacific Northwest Research Station, 2001).

[54] Noteworthy viewsheds encompass portions of Nan White beach at Bernières, *La Maison des Canadiens,* and Widerstandsnest (WN)21 at Lion-sur-Mer. See Peter Caddick-Adams, *Sand and Steel: The D-Day Invasion and the Liberation of France* (New York: Oxford University Press, 2019), 775, 779, 795.

and distribution of rephotographic sites. The scope of foresters Laura E. Hendrick and Carolyn A. Copenheaver's examination of Southern Appalachian vegetation change was determined, for instance, by more than 200 archival images comprising the J.C. Porter collection.[55] This approach is likewise influential in the study of E.W. Merrill's photographs, as discussed in Chapter 4. Historian Michael Amundson's resurvey of historical views photographed by Wyoming booster photographer J.E. Stimson embodies something of a hybrid, in that Stimson placed special commercial focus in development of the Union Pacific rail corridor.[56] Both approaches are relevant to cultural landscape applications, based on wide variation in source availability for many sites. The relative length of historical interval between views is also a function of scope, often limited by the availability of stable photographic media dating to the mid-19th century.[57]

Approaches and methods for relocating and recording camera stations vary broadly, both in demonstrating specific rephotographic technique and the rigor of implementation. The work of photographer-scholar Mark Klett and colleagues is exemplary, both in consistently demonstrating and explaining a trigonometric approach. Featured in the 1977-1979 Rephotographic Survey Project (RSP) and in its 1997-2000 sequel in the *Third View* project (including brief and low-resolution, albeit insightful, video clips), researchers pinpoint a set of landmark details in the source photograph before interconnecting them as a system of

[55] Laura E. Hendrick and Carolyn A. Copenheaver, "Using Repeat Landscape Photography to Assess Vegetation Changes in Rural Communities of the Southern Appalachian Mountains in Virginia, USA," *Mountain Research and Development* 29, no. 1 (February 2009): 21-29, https://www.jstor.org/stable/mounresedeve.29.1.21.

[56] Michael A. Amundson, *Wyoming Time and Again* (Boulder, CO: Pruett, 1991).

[57] Stahlschmidt et al, 69.

intersecting, right-angled line segments (Fig. 2-5).[58] Proportions calculated according to length measurements derived from each unique segment provides a sound analytical basis for camera alignment, delineated along three axes of physical movement: (a) depth (forward/backward), (b) elevation (vertical plane), (c) horizontal (left/right offset), (d) azimuth (compass bearing), (e) inclination (tilt forward/backward), and (f) roll (clockwise/counterclockwise) (Fig. 2-6). Proportions can then be compared between source image and prospective rephotographic camera stations and images, refining their alignment.

Figure 2-5. Still frames extracted from digital footage filmed during Third View fieldwork. Reference points are marked and measured on rephotographic views, left, before the resulting system of triangulated line segments are compared. (Klett et al, 2004 [DVD-ROM]; figure layout by author).

[58] Mark Klett, Kyle Bajakan, William L. Fox, Michael Marshall, Toshi Ueshina, and Byron G. Wolfe, *Third Views, Second Sights: A Rephotographic Survey of the American West* [DVD edition] (Santa Fe, NM: Museum of New Mexico Press, 2004).

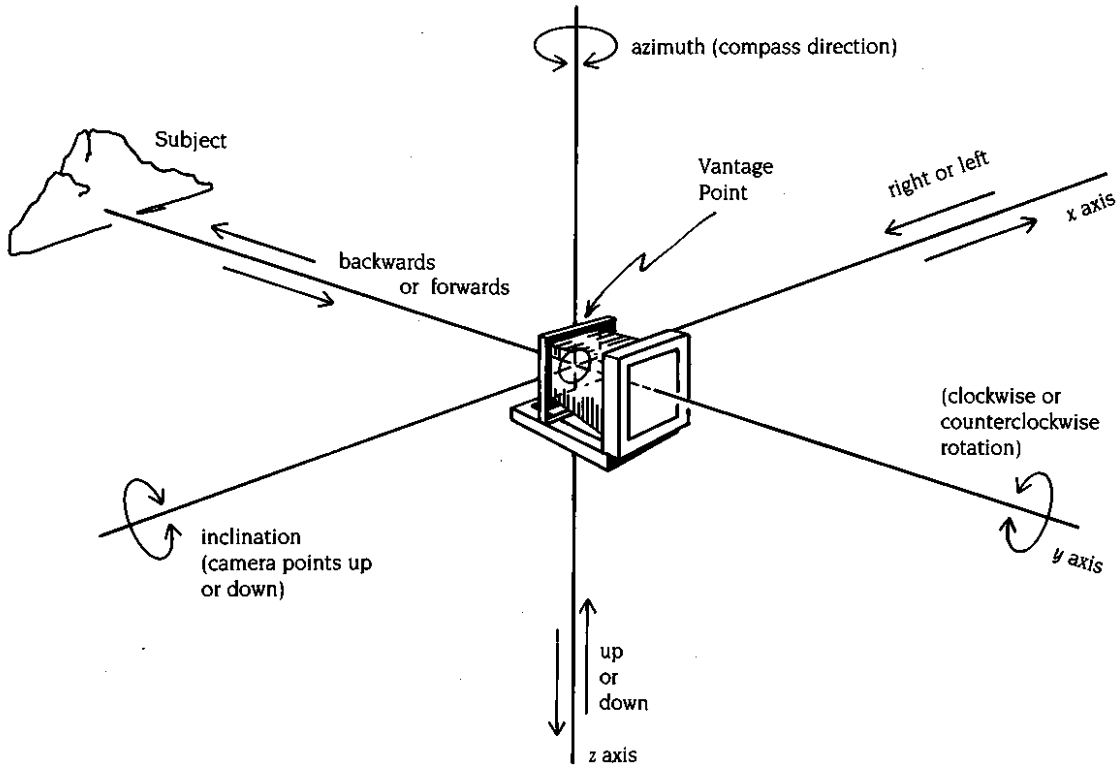

Figure 2-6. "Geometry of a Vantage Point and Related Change in the Lens and Camera Positions." (Klett et al 1984, Appendix A)

Rational calculations like these underscore a transparency of process in achieving compelling photographic pairings or series, in turn sustaining a capacity for future rephotographic iterations. To this end, the Italian geographer Tania Rossetto has advocated for a constructive rigor in the "compulsory nature and strict rules" of technique, while specifically insisting that technique duplicate subject [space], vantage point, frame, and "atmosphere" of cemetery landscape viewsheds, despite the technical impracticalities which accompany the latter quality.[59] Conversely, a much more informal approach is apparent in a study and survey of viewpoints associated with the work of Benjamin Gifford (1859-1936) in Oregon, particularly in

[59] Tania Rossetto, "Repeat photography, post-phenomenology, and "being-with" through the image (at the First World War cemeteries of Asiago, Italy." *Transactions of the Institute of British Geographers* 44, no. 1 (August 5, 2018): 125, 135, doi:10.1111/tran.12261.

determining elevation.[60] These techniques are also illustrated in a 2017 monitoring study of historic adobe architecture.[61] "Casual repeat photography," as it has been applied to tracing change in Hopi dwelling structures, proposes an approach based on partially overlapping viewsheds among various historical photographs in a locale, which appears to eschew specific spatial analysis.[62] Similarly, from 1973 to 2022, writer Winston Ramsey edited a military history series predicated on the consistently informal rephotography of U.S. and European archival sources, with varied results.[63]

Rephotographic studies linked with public resource management interests have fostered protocols and tools for continued monitoring of camera stations. The United States Geological Survey (USGS) has published technical guidance urging the use of notated viewshed diagrams intended to explicate and simplify future reoccupation of the camera station (Fig. 2-7).[64] In the case of rephotographic pairings derived from sites of the Nanga Parbat region of the Himalayas, researchers have taken a similar principle to heart in rendering diagrammatic perspectives from matched photographic pairs.[65] These renderings highlight and graphically code areas of change

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[60] Benjamin Gifford, Steve Terrill, John Daniel, and Thomas Robinson, *Oregon Then & Now* (Englewood, CO: Westcliffe, 2000), 45, 56, 63; A variety of Terrill's notes, relating his growing awareness of technical challenges and consistent methodology, are nonetheless instructive.

[61] Silvia Callegari, "Rethinking Preservation at Fort Union National Monument" (master's thesis, University of Pennsylvania, 2017), 75-81, 88-93, 117-178, NPS-FOUN archives.

[62] Richard V.N. Ahlstrom, "Casual Repeat Photography: An Illustration from Hopi Architectural History," *Journal of the Southwest* 34, no. 2 (Summer 1992): 166-186.

[63] *After the Battle* [pictorial journal series], nos. 1-195, Index B002 (Barnsley, UK: Pen & Sword, 2022).

[64] Frederick C. Hall, *Photo Point Monitoring Handbook: part A—Field Procedures,* PNW-GTR-526 (Portland, OR: USFS Pacific Northwest Research Station). Hall's method promotes the use of detailed quantitative notes, gathered to reconcile measurable distances among key landscape elements within the viewshed and the photographic records they support.

[65] Marcus Nüsser, "Change and Persistence: Contemporary Landscape Transformation in the Nanga Parbat Region, Northern Pakistan," *Mountain Research and Development* 20, no. 4 (November 2000): 352-354.

for continued reference, as do grid overlays designed to integrate rephotographic sources with geodata attribute tracking tools.[66] These studies for resource management reinforce connections between image analysis techniques, field techniques, and the utility of long-term spatially explicit record-keeping. They are inherently forward-looking, helping practitioners to recognize the evidentiary wellspring possible in an open-ended process of systematically structured monitoring.

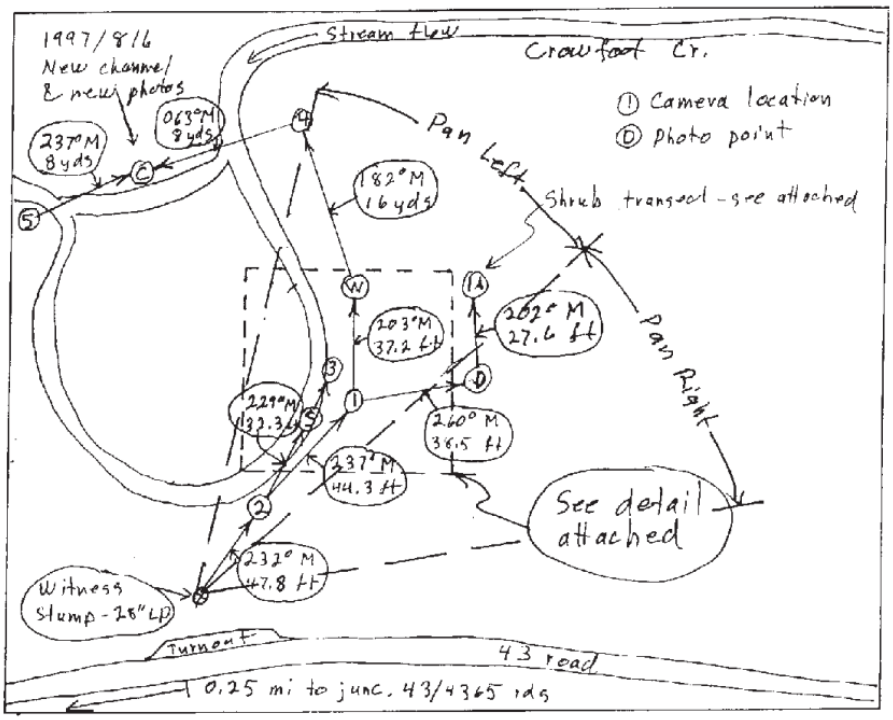

Figure 2-7. Plan diagram illustrating sequence and position of laying out a viewshed for future rephotographic monitoring at Pole Camp, Snow Mountain District (Harney County, Oregon). This technique is designed to simplify locating and orienting camera stations for accurate and precise comparison and incorporates land features within a modest site scale. (Hall, 2002)

Specific to historical landscape applications, rephotographic methods stress the realistic need to accurately translate a range of two-dimensional image details, which are bounded by a

[66] Nüsser, 352, 354; W. Roush, J.S. Monroe, and D.B. Fagre, "Development of a Spatial Analysis Method Using Ground-Based Repeat Photography to Detect Changes in the Alpine Treeline Ecotone," Glacier National Park, Montana, USA," *Arctic, Antarctic, and Alpine Research* 39, no. 2 (May 2007): 300, 304-305).

fixed image frame (i.e. rectilinear border), into three-dimensional space (Fig. 2-8). This translation remains relatively straightforward in concept, in contrast to the challenges embodied in its operational techniques and limitations. In fact, this translational relationship depends on analysis of specific feature types with the capacity to be located in spatial position and elevation, such as structural elements or topographic features, which in turn can be adapted as unique points in the source image. Discrete feature types generally differ from image details pertaining to broad, intangible landscape systems, such as "climate" or "cultural traditions and practices." Feature types alone do not offer cues to glean sufficient visual detail needed to accurately relocate a viewshed in three-dimensional space. Instead, sets of specific features are required to provide a photographic baseline to identify and recreate unique, site-specific viewpoints. Not often does the practitioner find what landscape architect Catherine Howett discusses as a "historic layering" of site elements over time, a term which connotes those elements' stratification against an identical plane and dimension.[67] Planner Kevin Lynch's usage of a "temporal collage" is closer to the mark while shifting our attention among features and periods in time—conceding the persistence of some features and seemingly simultaneous "transformation" or removal of others.[68]

[67] Catherine Howett, "Integrity as a Value in Cultural Landscape Preservation," in *Preserving Cultural Landscapes in America,* Arnold R. Alanen and Robert Z. Melnick, eds. (Baltimore: Johns Hopkins University Press, 2000), 205.

[68] Kevin Lynch, *What Time Is This Place?* (Cambridge, MA: MIT Press, 1972), 168-171.

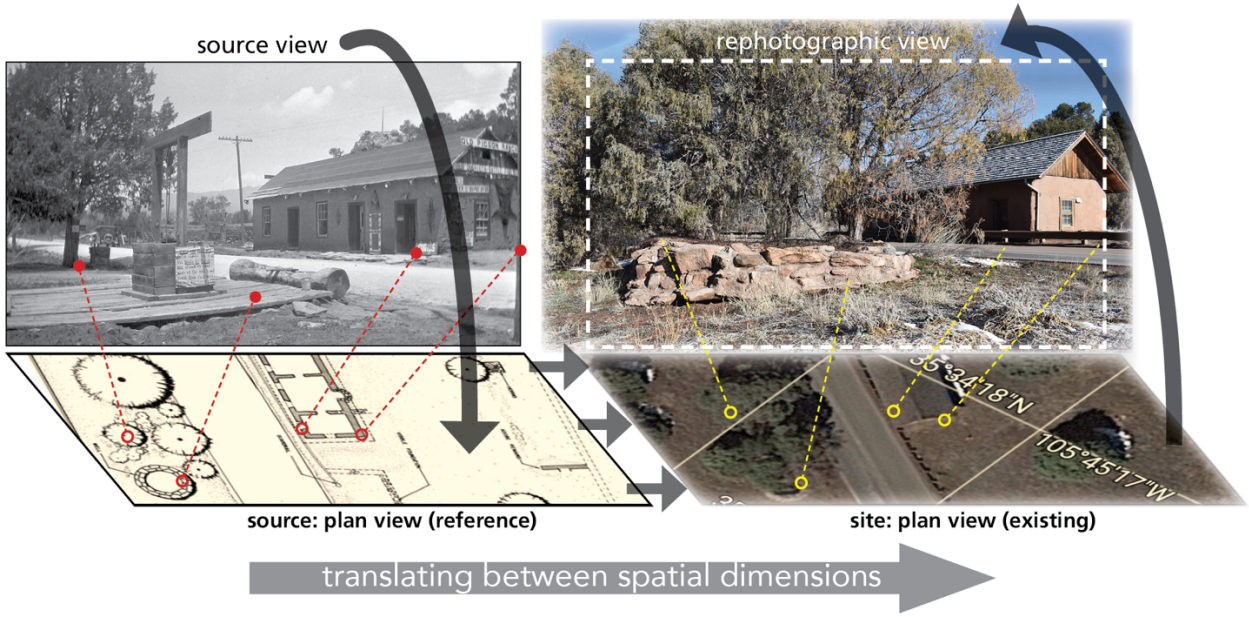

Figure 2-8. Diagram depicting the concept of translating historical reference feature points from a source photograph into a spatialized context, and, in turn, into contemporary viewshed. This viewshed, located along the Santa Fe Trail alignment near Glorieta, NM, was oriented using landscape features, including a well shaft alignment, tree specimens, and structural elements. (rephotographic source courtesy of NPS-PECO; rephotographic view and graphic by author)

Rephotography is also conceptually relevant in examining visible products of selected climate impacts at work in cultural landscapes. Rephotographic studies may highlight emergent phenomena such as glacial retreat, along with flood events and—no less critically for the American west—wildland fires (Fig. 2-9). Similarly conceived monitoring perspectives can also be structured to examine related changes in land cover, land use patterns, and built structures, a reminder of the "cultural ecotone" overlapping both natural and cultural resources and the external impacts that continue to shape them.[69] This approach engages a gradually revealed modulation in some long-term climate *trends* and, more immediately apparent, often disastrous

[69] Bruce F. Molnia, "Repeat Photography of Alaskan Glaciers and Landscapes from Ground-Based Photo Stations and Airborne Platforms," in *Repeat Photography: Methods and Applications in the Natural Sciences,* ed. Webb, Boyer, and Turner (Washington, D.C.: Island, 2010), 59-76; Daniel B. Fagre and Lisa A. McKeon, "Documenting Disappearing Glaciers: Repeat Photography at Glacier National Park, Montana," in *Repeat Photography*. see also U.S. Geological Survey, "Glacier and Landscape Change in Response to Changing Climate," http://www.usgs.gov/climate_landuse/glaciers/default.asp).

events with immediate visual implications.[70] A distinct example of both is available in the case of Grapevine Canyon, in Death Valley National Park. In October 2015, a severe flash flood wrought catastrophic damage to cultural resources throughout the historic district in a matter of hours, and extensive soil erosion hazards have since emerged (Fig. 2-10). More recent events include unprecedented, rainfall-related depredations to historic resources in Yellowstone National Park in 2022, as well as extensive impacts to the Upper Stehekin Valley road system in North Cascades National Park. Well aligned, iterative views of climate impacts share an overlapping interest in extending the landscape record forward, to document an emergent sense of site history—what scientist Angela Richman describes as the "whole story" of cultural landscapes, incomplete and in progress.[71] Recognizing no shortage of near-future applications, for better or worse, positions rephotography as a means of anticipation as well as deliberate response.

[70] Melnick, "Cultural landscapes and change," 225. See also Mark Klett and Michael Lundgren, *After the Ruins, 1906 and 2006: Rephotographing the San Francisco Earthquake and Fire* (Berkeley: University of California Press, 2006).

[71] Angela Richman, "Every Place Has a Climate Story," *The George Wright Forum* 32, no. 1 (2015): 71.

Figure 2-9. Rephotographic pairing made at Apgar Lookout, Glacier National Park (July 29, 1937 / August 21, 2008). This pairing uses infrared film, while the source image was drawn from a collection of work by Lester Moe. Moe's view records conditions following the 1929 Half Moon Fire, adjoining the Going-to-the-Sun Road, then under construction, while Grob's rephotograph shows changes in upland cover and infrastructure nearly 80 years after. (image: NPS Fire/Aviation Management; Ian Grob/USFS 2007-2009)

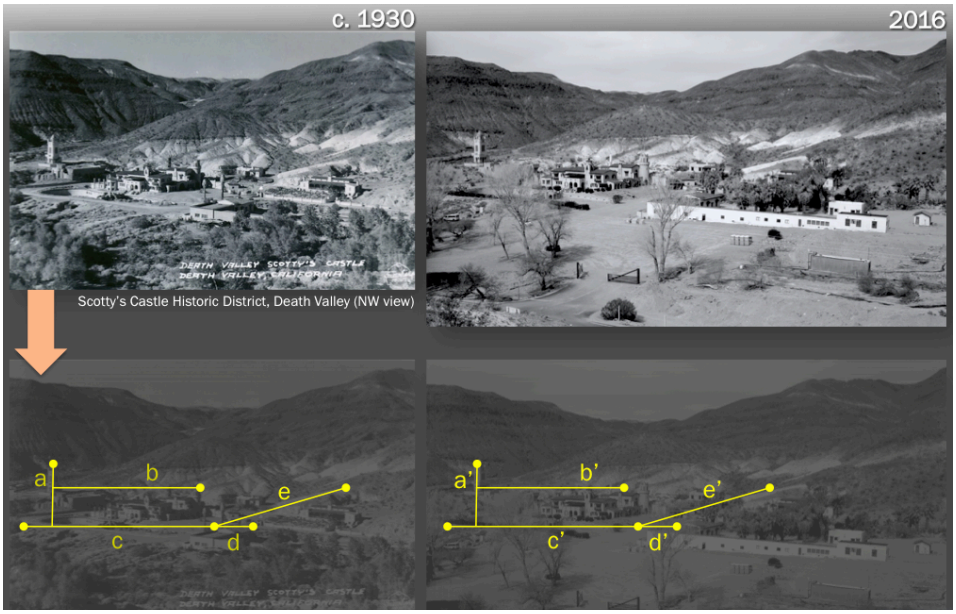

Figure 2-10. Rephotographic pairing created during a condition assessment of Scotty's Castle, a cultural landscape site impacted by severe flooding in Death Valley National Park. Selected cultural landscape features were used to generate reference points for successfully locating and aligning views, diagrammed below. Severe flooding has again affected the Park in 2022. (NPS-DEVA/author, 2016)

A rephotographic approach responds, most importantly, to the need to understand the cultural landscape paradigm as a source of evolving knowledge, among environmental and cultural processes that continue to modulate with time. This conceptual stance recognizes the ongoing need for consistent visual documentation; a preservation ethic underscores this need as a means to supply documentary guidance applicable to diverse and overlapping skill sets of cultural landscape stewards.[72] This sort of documentation, moreover, is a potential aid in sustaining and extending a graphically coherent lineage of institutional memory as time passes—transects through practice as well as places. "Photography is a visual language," visual media scholar Peter Goin contends, "that survives by constantly adapting."[73] Efforts to keep pace within the cultural landscape record must do likewise.

2.4 Cultural Landscape and Rephotography Application

Landscape rephotography shows promise for systematic uses of historical visual sources in the scope of cultural landscape site documentation. Relevant source photographs exhibit a diverse and multi-faceted vehicle for landscape preservation inquiry—a role complicated by the broad assortment of their use in illustrative, even loosely emblematic settings.[74] As a descriptive tool for distinctive landscape features, photographic records often perform a "substitutional" function, replacing or modifying alphanumeric text and other graphic media, as shown in the

[72] Charlie Pepper and Susan Dolan, "Maintained Landscapes in the National Park Service," *The George Wright Forum* 31, no. 1 (2014): 46-48; Page, "Cultural Landscape Preservation in Context: Responding to a Changing Environment," *The George Wright Forum* 32, no. 1 (2015): 69.

[73] Peter Goin, "Visual Literacy," *Geographical Review* 91, no. 1-2, special issue "Doing Fieldwork," ed. Dydia DeLyser and Paul F. Starrs (Spring 2001): 366.

[74] Ana Tostões and Ana Maria Braga, "Preserving Collective Memory through Photography," *Future Anterior: Journal of Historic Preservation, History, Theory, and Criticism* 10, no. 2 (Winter 2013): 84; Joshua Brown, "Historians and Photography," *American Art* 21, no. 3 (Fall 2007): 12.

work of landscape historian Kenneth Helphand and other scholars.[75] The typical role of illustrating written analysis, however, does not guarantee spatial accuracy in attempting to engage with historical conditions for a specific site. In practice, this has resulted in a tendency to emphasize the illustrative function of images, rather than their uses for multi-dimensional analysis or comparative field applications.[76] Several notable exceptions are discussed as precedents in Chapter 5, which speak to an instructive degree of creativity and attention to spatial evidence. From an inventory standpoint, however, such instances mark the exception rather than the norm.

Media historians have urged that historical site photographs should be well contextualized when used as a source of primary evidence.[77] Recognizing the same sensibility in the realm of cultural landscape documentation, rephotographic applications demand a scrutiny of the tangible context, in attempting to identify, locate, and further reveal that setting. Such reviewing and reframing provide the basis for effecting a workable visual translation between two-dimensional image and the three-dimensional landscape space. First, this interface is a temporal and geo-visual frame for the cultural landscape researcher, helpful to select and specify

[75] Miles Orvell, "Visual Studies, Historical Studies: Connecting the Dots," *American Studies* 47, no. 2 (Summer 2006): 98-101; Sarah Blankenbaker and Erin Besler, "Neither/Nor: Unfaithful Images in Photography and Preservation," *Future Anterior* 11, no. 1 (Summer 2014): 7-10; Kenneth Helphand, "Magic Markers," in *Yearbook in Landscape Architecture: Historic Preservation*, ed. Richard Austin et al. (New York: Van Nostrand Reinhold, 1983), 95-102.

[76] The Landscape Institute and Institute of Environmental Management & Assessment (IEMA) promotes the somewhat ambiguous classification of an "illustrative viewpoint" among its guidelines, so defined based on the function of the viewshed for a unique location. A "specific viewpoint," by contrast, supposedly denotes "key," "noteworthy," and "cultural landscape associations." See Carys Swanwick, *Guidelines for Landscape and Visual Impact Assessment [GLVIA]*, Third edition (New York: Routledge, 2013), 107-109.

[77] Barry Goldstein, "All Photos Lie: Images as Data," in *Visual Research Methods: Image, Society, and Representation,* ed. Gregory C. Stanczak (Los Angeles: Sage, 2007), 61-81; Martha Sandweiss, *Print the Legend: Photography and the American West* (New Haven, CT: Yale, 2004.)

a range of assessment or description. Second, it provides a means of achieving reliable and compelling comparisons between (or among) periods in time.

Similar applications also provide for a more explicit identification of historical views as a source of spatial evidence, not unlike what landscape architect Thomas Kane posited as "reverse perspective."[78] Kane's work with reconstructing landscape features in the New Harmony, Indiana settlement is particularly instructive in two capacities. First, it exemplifies a spatially explicit analysis of photographic detail across multiple spatial dimensions (Fig. 2-11). Of equal importance, the overarching project situated this analysis as part of an active, applied response to historical change, and as such deserves wider appreciation as an early innovation in landscape preservation practice. At present, external limits within cultural landscape photo-practices frequently stress efficiency during a relatively brief window of time, sometimes as little as a few hours onsite, while physical location and spatial orientation may vary significantly; rephotographic fieldwork, meanwhile, often embodies an inversion of this time-location relationship, shifting the emphasis to greater amounts of time focused in the detailed study of fewer locations (Fig. 2-12).

[78] Thomas J. Kane, "The Use of Reverse Perspective in the Deduction of Plans and Elevations from Photographs," *Bulletin of the Association for Preservation Technology* 9, no. 3 (1977): 30–38.

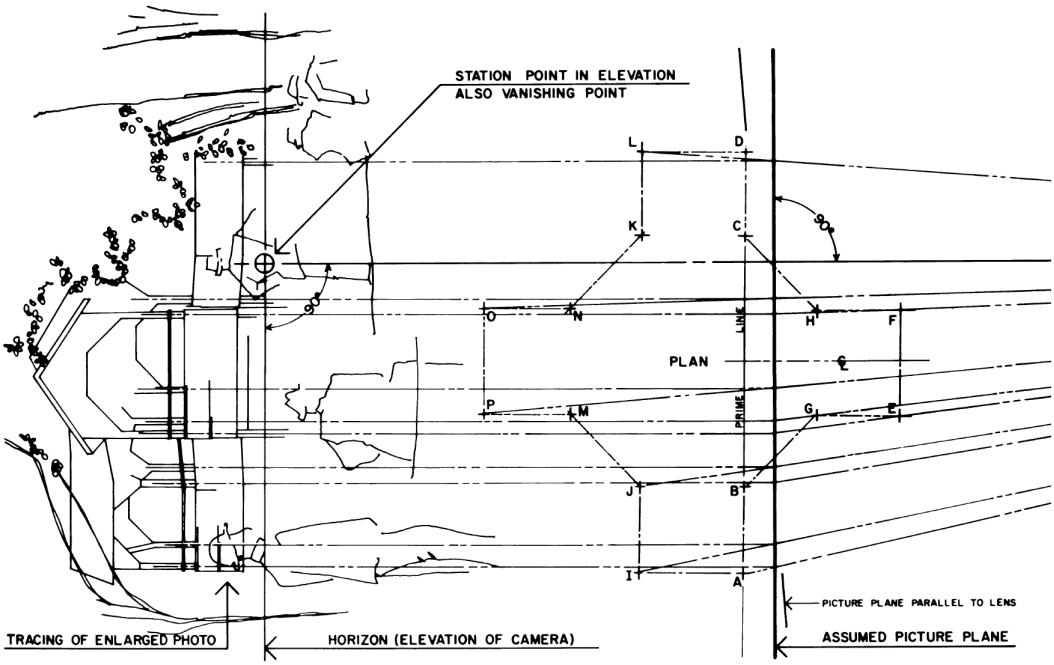

Figure 2-11. Composite plan and section dimensions drafted through Thomas Kane's analysis of archival photography. Note: parallax view lines extend beyond the righthand border of this figure, converging on a projected viewpoint. (reproduced from Kane, 1977)

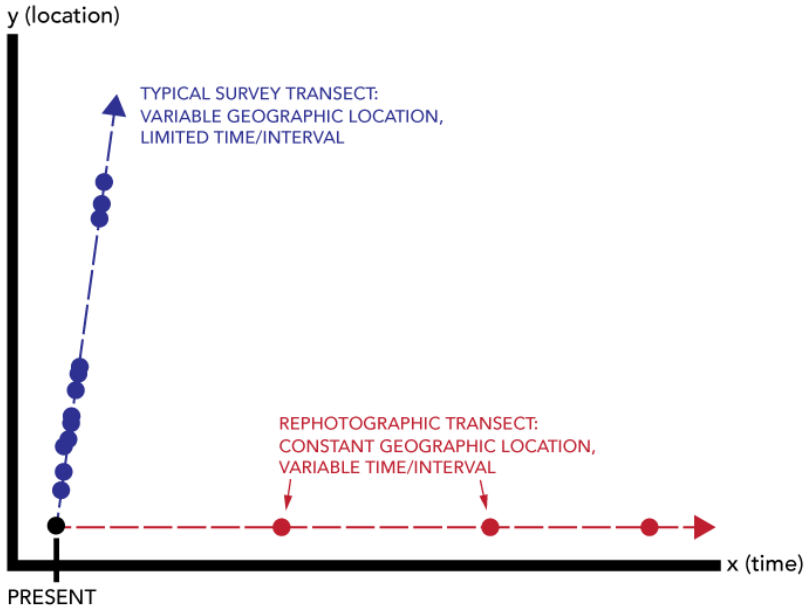

Figure 2-12. Diagram illustrating conceivable time and space contrasts between the routes used to negotiate typical cultural landscape photo-documentation during site visits and rephotographic fieldwork.

Confronting archival photographs as records of historical conditions provides both selective and systematic opportunities to access historical evidence. For cultural landscape

practitioners, however, *selectivity* is often an implicit watchword: while landscapes themselves are assessed comprehensively, source image contents and details are often considered only on a piecemeal, limited basis, influenced by factors as diverse as source composition, lighting, resolution, and viewer experience. Studying sources in an isolated or abstract setting—i.e. not through direct comparison or aligned with the viewshed itself—heightens and complicates this tendency, at the risk of inconsistent operational methodology. Expanding the consistency of rephotographic technique in cultural landscape photographic research provides the basis for a possible remedy, however, amid calls from public cultural landscape stewards to rethink and update documentation practices and products.[79]

The basis of rephotographic source photographs' interface with established practice already exists within the cultural landscape framework itself. Framework characteristics offer a systematic and iterative means of scrutinizing images, as has proven the case countless times in identifying missing or extant features in actual sites. Proceeding through each category in turn guides the researcher's attention through image features in a deliberate manner, resulting in a more comprehensive grasp of each photographic viewshed. This strategy stands to reframe each source photo as a set of overt graphic data, to be more rigorously integrated among geospatial tools, written analyses, and descriptive captions. At a broader level of practice, the same construct may also be adapted as a winnowing process within archival surveys, in which only some photographs may be relevant to site assessment and field documentation uses.

In total, rephotographic techniques are well matched to timely innovations in spatially consistent documentation of cultural landscapes. As will be discussed in following chapters, they

[79] Karin Grantham, NPS climate change and cultural landscape workshop, Orick, CA, March 2017; Julie McGilvray, personal communication, Santa Fe, NM, October 2018; Susan Dolan, personal communication, Dorris Ranch, Springfield, OR, January 31, 2020; Lauren Meyer, NPS-FOUN coordination meeting, December 14, 2022.

offer both (1) a means to augment analytical accuracy and precision with regard both to historical source analysis and field survey recording, as well as (2) the potential to highlight conditions at a human scale for managerial decision-making processes. In this intellectual setting, the cultural landscape framework provides an organizational typology in the specific identification of distinct site features spanning multiple periods in time. Rephotographic techniques offer an increased rigor to analytical comparisons between period views, as well as an inherent emphasis on spatial accuracy and feature detail. Both are predisposed to a compatibility, reflected in the similarity of an emphasis placed with analyzing visible, historically persistent site features. These mutual benefits reflect a suitable fit which stands to strengthen the overarching practice of photo-documentation for cultural landscape practitioners.

CHAPTER 3

REPHOTOGRAPHIC APPLICATIONS IN CULTURAL LANDSCAPE PRACTICE

3.1 Introduction

Previous chapters have presented an approach to rephotographic source analysis and field techniques with the established NPS Cultural Landscape framework of characteristics and features. This chapter, by contrast, considers several instances of rephotographic concepts and techniques implemented in cultural landscape practice today. Examples draw from the work of practitioners engaging historical views in the context of research, planning, and design work for historically significant landscapes in the West, specifically in California, New Mexico, and Idaho.

In addition to analytical roles, it is apparent that rephotographic applications extend to the planning and staging of ongoing stewardship measures, as seen in work developed for Yosemite National Park, as well as those still under development at Pecos National Historical Park. Stewardship measures may also encompass the design and implementation of new public education installations (also known as interpretation measures) and public art, considered in instances such as rural parkland at Elk River in northern California and urban Boise, Idaho. There, the form and function of rephotographic implementation play a key role in landscape preservation design. In these settings, the ability to preserve (or reclaim) aspects of historical views *in situ* are intrinsic to preservation approaches.

Considering rephotographic applications in the context of contemporary preservation practice also benefits from a basic awareness of variation possible in the design of viewing installations onsite. Selected types have been identified within the following examples, organized on the basis of format with brief discussion of associated benefits or limitations to use. These are

intended only as an early survey of noteworthy alternatives, rather than an in-depth assessment of design concepts or viewing parameters, both of which fall well beyond the scope of this discussion. A more comprehensive survey of format types and variations will doubtless benefit the developing interface of rephotography, perhaps broadening a palette for creative efforts apparent today in contemporary cultural landscape preservation practice.

3.2 Yosemite Lodge, Yosemite National Park

In reporting on analysis and treatment recommendations for Yosemite Lodge Historic District, a documented cultural landscape, historic preservation practitioners of the planning and design firm Moore, Iacofano, and Goltsman (MIG) adopted a deductive mode of inquiry in the use of rephotographic comparison. They used rephotographic pairings as the basis of a digital overlay technique, in addition to side-by-side frames, which in turn delineated the physical profile of overstory conditions according to historical site photographs (Fig. 3-1).[80] Moreover, these graphic configurations serve as an important facet of preservation treatment recommendations, invoked both to delineate clear, well-aligned contrasts between selected historical views and existing conditions and depict the appropriate extent of specific interventions proposed. Here, researchers sought to more precisely grasp and guide change among existing viewsheds and natural systems within Yosemite National Park.

[80] Rephotographic work informed the design of technical guidance for preservation stewardship; see Laurie Matthews, Rachel Edmonds, Edward San Filippo, and Jen Straite, *Yosemite Lodge Historic District: Cultural Landscape Report* (Portland, OR: MIG, Inc., 2020, in partnership with Yosemite National Park), 291-296; 359-366.

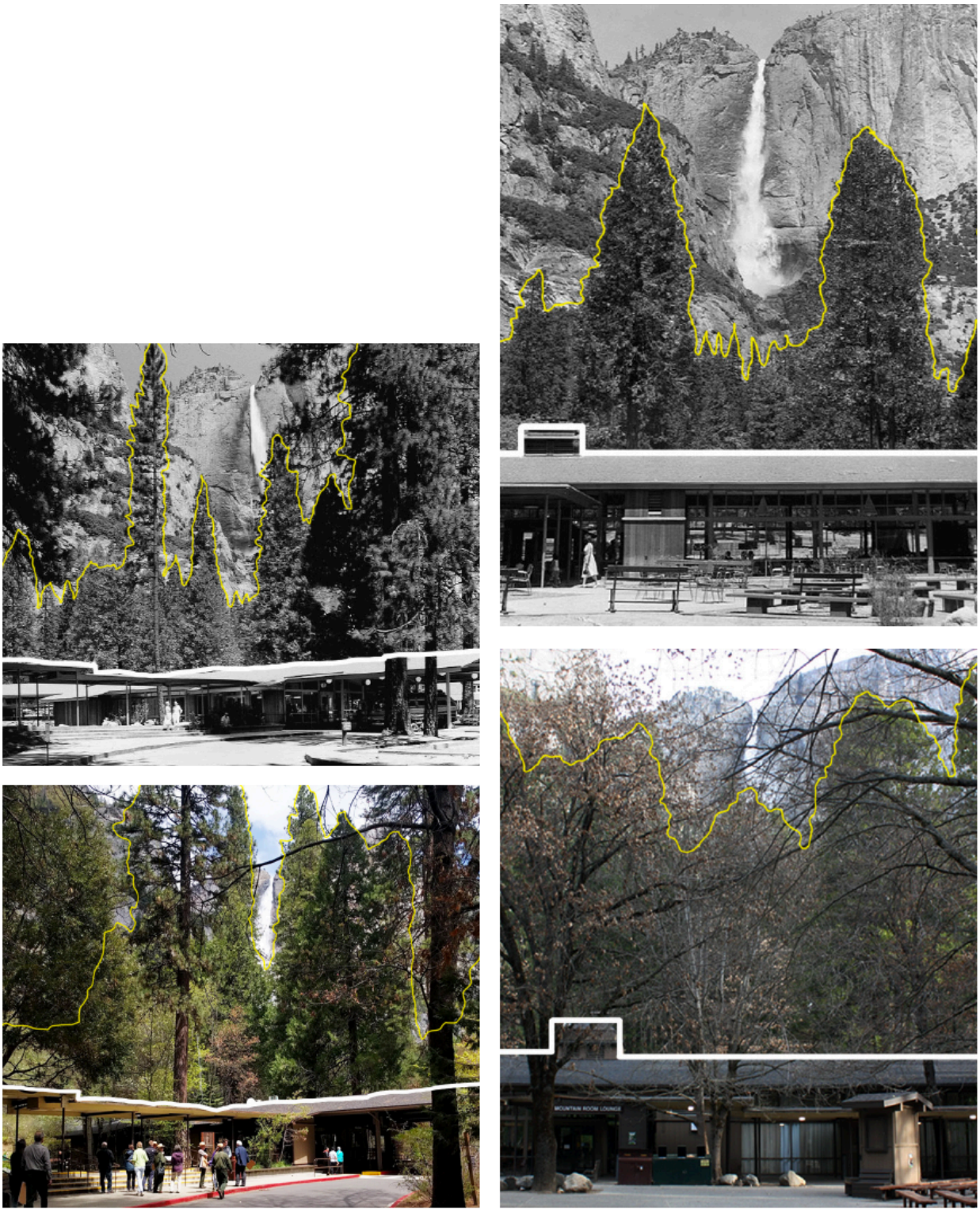

Figure 3-1. Example of vertically paired (i.e. top-down) rephotographic imaging, used to visualize contrasting overstory conditions photographed within the Yosemite Lodge Historic District, 1956 and 2018. The yellow outlines delineate canopy massing analyzed within each frame. (MIG / Matthews, Edmonds, San Filippo, and Straite, 2020)

The resulting visualizations demonstrate, first, that rephotographic comparison is well suited as an analytical format to inform the research and planning modes of work among cultural landscape professionals. In particular, they illustrate its potential for documenting and highlighting change over time with respect to benchmarks in specific historic landscape features, rather than broad, nebulous "scenes" or "scenic views." As an alternative to simple then-and-now diptychs, these views distill rephotographic pairings as a diagrammatic composite of specific site features.[81] Moreover, in referencing the cultural landscape framework, the work anchors the rephotographed canopy views in an objective setting for managers' continued reference. In effect, identifying and illustrating this type of viewshed lays the groundwork for strategic monitoring points, as a systematic means of evaluating and *re-evaluating* managerial decision-making and its consequences in the future. As a stewardship tool, these composites demonstrate a grasp of the open-ended role rephotography can play in preservation planning, a reminder that cultural landscapes can neither be completed nor saved beneath a proverbial bell jar.

Temporally, the MIG preservation planners' example achieves the subtle effect of reframing McHargianesque plan view composites in a head-up perspective, at human scale.[82] This visualization technique helps orient management decision-making at ground level, in addition to situating specific views with regard to key spaces of landscape character and function. Furthermore, as a composite of photograph and diagram, this type of rephotographic visualization demonstrates a focus given to landscape dynamics among living features—patterns

[81] Matthews et al, 360-363.

[82] Ian L. McHarg, *Design With Nature* (Garden City, NY: Natural History Press, 1969). McHarg's work championed a detailed "layer-cake" approach to environmental analysis, with distinctive land attributes typified, categorized, and rendered as iterations of plan view map overlays. See also McHarg, "What would you do with, say, Staten Island?," *Natural History* 78, no. 4 (April 1969): 30-31.

in vegetation growth and decline, in the context of recreation use, for instance—as opposed to resorting to comparisons among the condition of architectural elements. For conditions in this historic landscape, a palimpsest resulting from decades of intervening management responses to successive, contemporary needs, engaging in these dynamics is no small matter. In this sense, heeding the surviving products of iconic park planning and design is an asset, rather than merely a stewardship responsibility.

3.3 Johnson's Ranch Archaeological Survey, Cañoncito, New Mexico

Intersecting with conflict-archaeology methodology, rephotographic techniques have drawn on selected historical views to shape investigation of the Johnson's Ranch landscape at Cañoncito, New Mexico. Associated with the historic Santa Fe Trail, the Confederate deployment in Apache Canyon in March 1862, and the subsequent Union assault in the Battle of Glorieta Pass, the physical context of the cultural landscape was altered through development of the U.S. Route 85 and the Interstate 25 corridor. Photographers William Whitford and Waldo C. Twitchell both photographed similar, southeast-facing views of the site (circa 1890 and 1914, respectively), superimposed with field imaging by Connor Consulting through a survey of topographic, structural, and vegetation detail (fig 3-2).[83] In addition to clarifying the historical record, their work provides a photo-visual reclamation of structural and circulation features in a highly disturbed site, whose historical position and orientation was previously unclear.

[83] Douglas D. Scott, *Metal Detecting Reconnaissance of Portions of the Cañoncito Subunit of Glorieta Battlefied, Pecos National Historical Park, New Mexico* (Lincoln, NE: Connor Consulting, 2011). In his visit to the Glorieta Battlefield landscape, Whitford also visited and photographed the nearby Pigeon's Ranch site. These views have since informed rephotographic research conducted in partnership with Pecos National Historical Park. See Kerr et al., *Pecos National Historical Park: Cultural Landscape Report* [draft] (Eugene, OR: University of Oregon Cultural Landscape Research Group, 2021).

Figure 3-2. Superimposition of archival and rephotographic views of landscape features as a part of cultural resource reconnaissance survey of Johnson's Ranch site, Cañoncito, NM. Beyond its role in previous archaeological survey, this graphic serves to orient professionals contending with contemporary challenges of interpreting Glorieta Pass history for the public. (Scott, 2011; source photograph by William Whitford, c. 1890, courtesy Colorado State Historical Archives 10040294)

Examining a viewshed such as this, situated across a narrow box canyon, rephotographic analysis benefits from the relatively close proximity to reference features, including discrete architectural elements, ridgeline form and slope, and native vegetation. Even without the benefit of perspective correction, this shallow viewshed depth provides detail to reinforce a more reliable triangulation of an accurate camera station than would a much longer view in greater depth. Presenting the result as a superimposition, however, also has the effect of reducing

methodological transparency regarding portions of the image where the two iterative views overlap, and particularly where they conflict. This format tends to rely on detailed explanation—in particular the use of specific geospatial and bearing data—and benefits from spatially explicit reference graphics.

Figure 3-3. Rephotographic viewshed at Johnson's Ranch site, approximated for 2020-2021 from Connor Consulting imaging. (Santa Fe County Assessor's Office; annotated by author)

This case also illustrates the use of rephotography applied as a canny remote imaging strategy, in that a private residential parcel adjoining Johnson's Ranch Road largely encompasses the extant landscape features—thereby placing them beyond the immediate purview of public management and more direct scrutiny (Fig. 3-3). Although remote imaging is typically synonymous with satellite or aerial imaging technology and the plan-view perspective it infers, rephotography takes what is, in effect, a section perspective of its survey subject from a distance. Rephotographic viewsheds such as this, oriented astride (transecting) latter-day property parcel lines, serve as a reminder that the dimensions of rephotographic work may well extend beyond

the tangible and visible considerations into changing political and legal realms of landscape, and perhaps into the interpersonal (where permission is required to access private property). Recognizing the need to contend with questions of *access* to camera stations, in addition to their geomorphology, requires creative and professional acumen alike.

3.4 Considering Rephotographic Installation: Typology and Implication

Interpretive installations based in rephotographic viewing are instructive for design-oriented practitioners in cultural landscape preservation. They offer a concrete example of how cultural landscape documentation methods can connect research and stewardship, serving outreach as well as educational purposes. While cultural landscape preservation and public interpretation goals are not identical, measures used to help visitors gain awareness of change over time can be informed by rephotographic visualization techniques, anchored in cultural landscape preservation methodology, including those found in the preceding chapters. These merit discussion as an application for rephotographic study, based on the premise that the values of observation, scrutiny, and possible discovery are not the domain of an expert, specialist demographic alone, but inclusive of a wider viewership.[84] Precedents identified in agency-managed landscape sites—including rephotographic viewsheds with hiking and other recreation uses—are a case in point, where the camera stations may serve to orient visitors, anchor travel routes, or perhaps support efforts to communicate and clarify ongoing stewardship concerns and opportunities. These demonstrate possible considerations for rephotographic applications beyond

[84] Karina C. Mullen, Gregory Newman, and Jessica L. Thompson, "Facilitating the Development and Evaluation of a Citizen Science Web site: A Case Study of Repeat Photography and Climate Change," *Applied Environmental Education & Communication* 12, no. 4 (2013) 261-271.

guiding resource management decision-making and venture into the realm of the public's appreciation of historic viewsheds.

Rephotography-based interpretive design features typically comprise one of three basic design concepts: (1) a paired-image format, demonstrating and perhaps calling out changes to be identified between images screened or mounted on signage; (2) a source image-focused format, displayed via projection, a viewing device, or a scaled installation, where the relationship between view and subject is mediated directly by the source image; and (3) what I consider an open-ended installation, where careful photographic analysis is used to position and orient viewers (or would-be rephotographers) to signage or other design elements that display one or more relevant source images. While exhaustive analysis of each type falls beyond the scope of this study, several instances do illustrate the flexibility of rephotographic application in contemporary preservation settings.

Viewpoints articulated along the Elk River Trail alignment offer an example of the paired-image format (Fig. 3-4), sited along a stream corridor within the Bureau of Land Management (BLM) Headwaters Forest Reserve at Elk River near Fortuna, California. In addition to its management partnership of an old growth redwood ecosystem with the California Department of Fish & Wildlife, BLM managers have implemented a set of hinged panels (Figs. 3-4, 3-5, and 3-6), screen-printed with 1907 and 2019 photographic views, overlooking the site of Falk, a company lumber mill town active from 1884 until 1937. This installation is sited specifically to position and orient viewers facing the historical viewshed, in turn informing hiking path design aligned along a historic road grade, comprising a waypoint for a 3mi (4.8km) educational program loop.

Figure 3-4. Interpretive signage overlooking the Falk site at Elk River Trail. The panel is sited to face east, matching the historical viewshed at 40°41'4.71"N, 124°7'30.55"W. (author, August 2021)

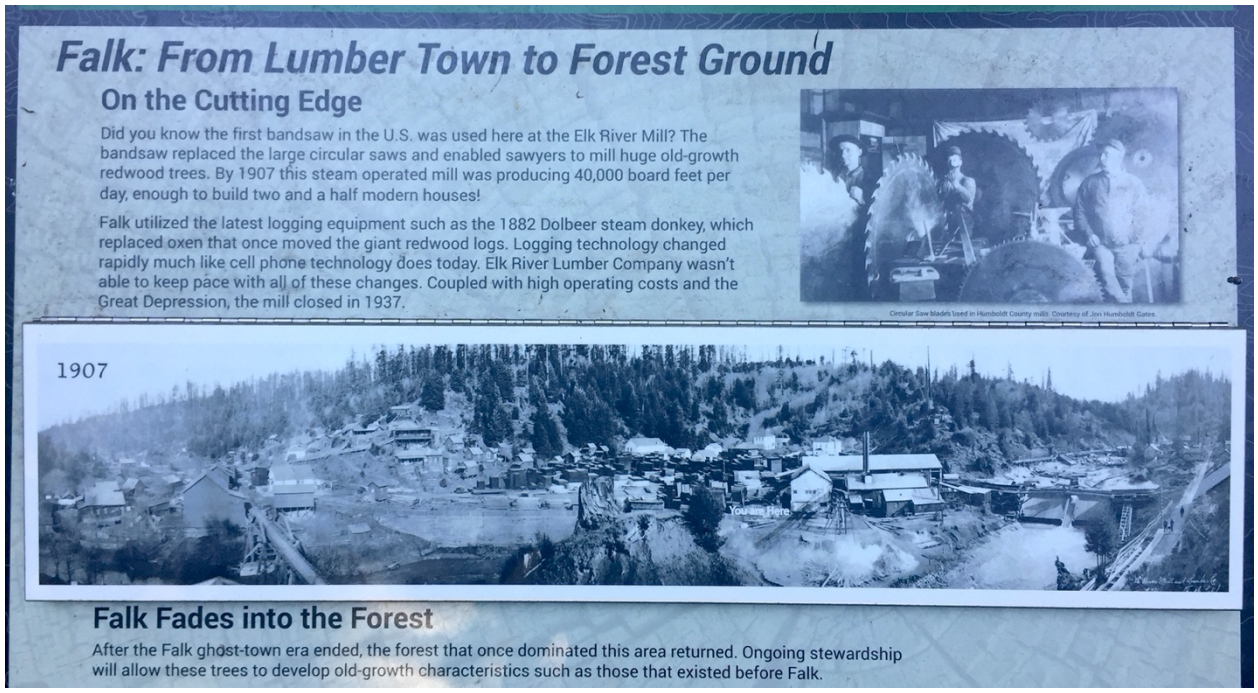

Figure 3-5. Falk interpretive panel, detail view, with 1907 source photograph shown. The rephotographic pairing is merged with a contextual description, but not overtly explained. (BLM Headwaters-Arcata; photo by author, 2021)

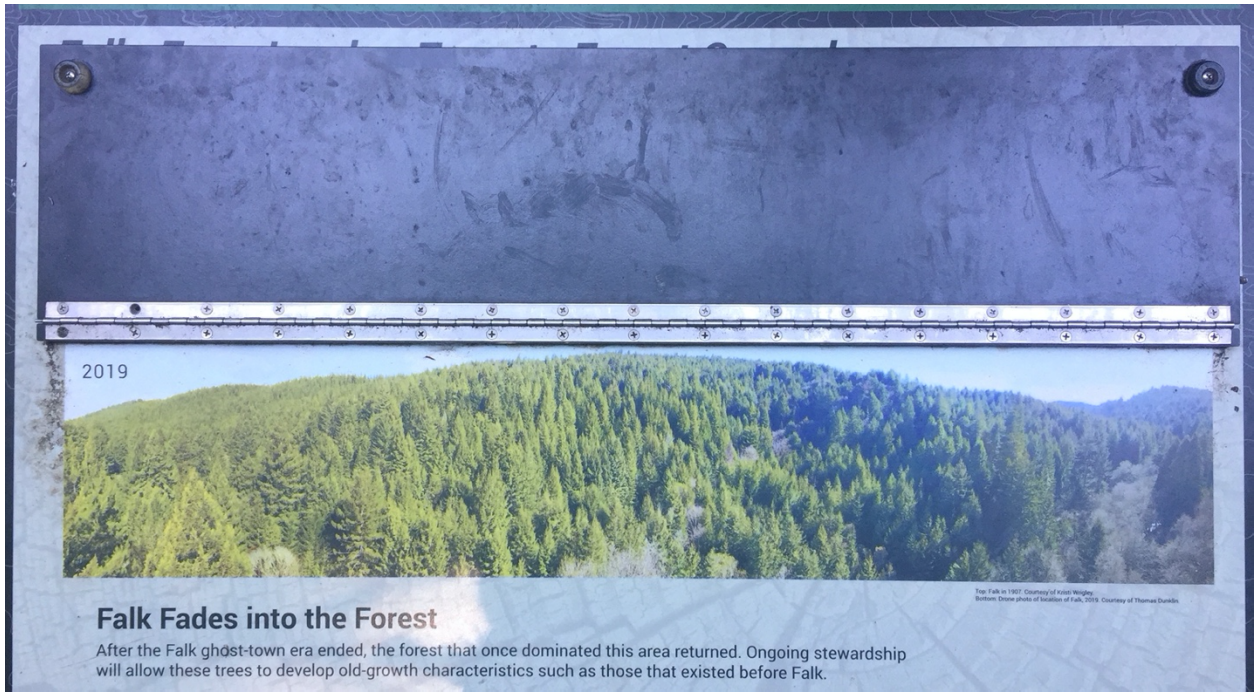

Figure 3-6. Falk interpretive panel, detail view, with 2019 rephotograph shown. (BLM Headwaters-Arcata; photo by author, 2021)

The paired format facilitates both a set of viewing parameters for framing a desired viewshed and a hands-on means of flipping back and forth between images. This enables ongoing comparisons between views and the viewshed itself, as the latter continues to change. In this example, the fact that the viewer lacks a side-by-side comparison between two photographic images (i.e. on the same viewing plane) reinforces the primacy of this comparison between photographic record and contemporary landscape viewshed. This helps to prioritize some sense of landscape processes and dynamics for the viewer, even if not overtly stated. Staging the comparison from the surface of an interpretive panel, in turn, serves as a location for further cues and insights into cultural and environmental processes at work in the viewshed and its context(s).

The paired-image format is also sensible when taking into account virtual or remote interpretation needs, when it is not possible or practical for would-be viewers to reoccupy an established camera station. The NPS Climate Change program has utilized this format in an online setting, revealing and explaining the impacts of climate-related events and trends, such as glacial retreat and wildfire; study sites include Apgar Lookout (1937/2008), located in Glacier National Park, and the southern shore of Walker Lake (1952/2008), in Gates of the Arctic National Park and Preserve.[85] The results of historic preservation and rehabilitation projects within several national historical parks in the West have also been illustrated in a similar format, albeit displaying questionable accuracy in some sites.[86]

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[85] Tina Boehle, "Website Explores Historic National Park Service Fire Lookout Photos," *InsideNPS* (2014), U.S. Department of the Interior, For Employees, September 5, 2019; USGS Northern Rocky Mountain Science Center, "Interpreting Panoramic Lookout Photos," Series: Panoramic Project Shows How National Parks Change Over Time (July 2020); Ronald D. Karpilo, Jr., Chris Allan, Jeffrey T. Rasic, and Bruce A. Heise, "Repeat Photography of Historical U.S. Geological Survey Expedition Photographs in Gates of the Arctic National Park and Preserve, Alaska." *Geological Society of America [Abstracts with Programs]* 50, no. 6 (2018), doi:10.1130/abs/2018AM-323946.

[86] NPS Battlefield Protection Program surveys of Japanese defenses in Alaska's Aleutian Islands (completed 2011) offer a case in point, with particular regard to defensive gun positions as historic features on Kiska Island, including

Several cautionary considerations should accompany the use of this format type, in particular. First, as observed at the Falk site, a combination of recent ecological disturbance (an inherent byproduct of the trail development) and local climate have fostered rapid, dense under-canopy growth. The result is a wholly occluded view, altered in under two years, which effectively imposes a least a temporary disconnect between viewshed and its virtual past. The design of rephotographic installations in this format should therefore reflect a more holistic, likely phased (or cyclical) approach to revealing and protecting specific viewsheds in the cultural landscape; effective rephotography and landscape management are, in this sense, essentially co-dependent. Design features like photo panels are a current *component* of the viewshed, not its entirety. Design of such installations and careful management must therefore account for and engage with the environmental processes active with the viewshed, not merely an established viewpoint.[87] Doing so better engenders awareness of landscape dynamics for manager and visitor alike in sustaining photo-visual connections in time and space.

The source-focused format embodies a second area for caution. This format demonstrates a rephotographic concept in situating a given source photograph in space, while controlling and isolating the image itself for the viewer. Artist Dwaine Carver's adaption of stereoscopic scenic viewers for redeveloped viewsheds of downtown Boise, Idaho, offers one example (Fig. 3-7). Viewing scopes recreate camera position and orientation relative to 19th century views of historic

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Mercy Point and Kiska Harbor. Researchers published a set of what are, in effect, near-pairings to illustrate visible changes over a 1945-2007 period, based on small-scale features alone. See NPS, "Silent Sentinels of Kiska—the Japanese Guns of the Kiska WWII Battlefield," Aleutian Islands World War II National Historic Area, December 6, 2020.

[87] Selected examples include Ervin H. Zube, James L. Sell, and Jonathan G. Taylor, "Landscape Perception: Research, Application, and Theory," *Landscape Planning* 9 (1982): 7-8; Paul H. Gobster, Robert G. Ribe, and James F. Palmer, "Introduction to the *Landscape and Urban Planning* Special Collection on the Visual Assessment of Landscapes, *Landscape and Urban Planning* 191 (November 2019), https://doi.org/10.1016/j.landurbplan.2019.103635; and Landscape Institute, *Photography and Photomontage in Landscape and Visual Impact Assessment,* Advice Note 01/11, Technical Guidance Note (June 2018).

China Town, while excluding peripheral vision and the contemporary setting. When peering into these devices, viewers are not offered a magnified view of distant *contemporary* space and scene, but rather a virtual re-establishment of the immediate foreground. The effect here is distinctly visceral—if not jarring—resembling something akin to looking through a virtual portal to the past in place, focusing the viewer's observation onto that image in an immersive manner without peripheral distraction. Overall, the rephotographic construct pairs historical source views and its dynamic, contemporary setting alone; this pairing lessens the effect of bracketing seen in comparative time ranges between fixed images.

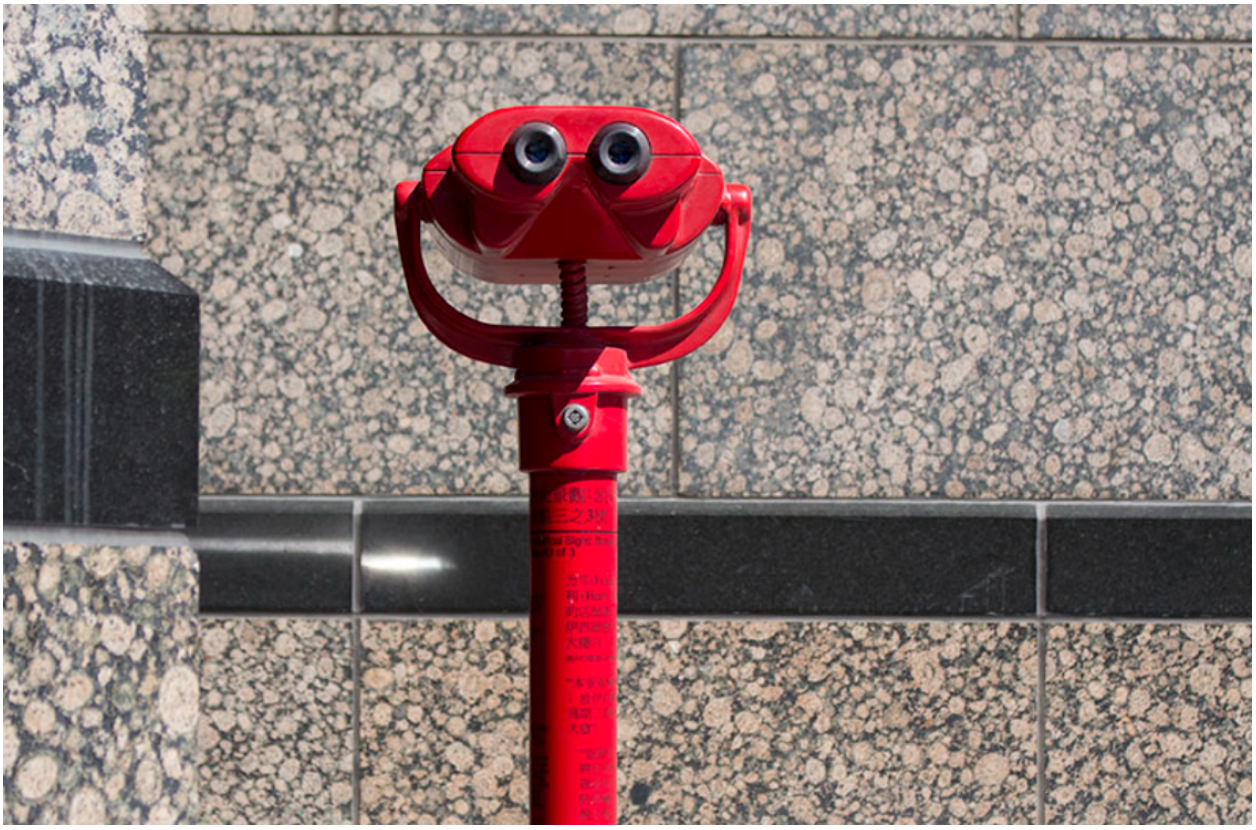

Figure 3-7. A stereoscopic viewer,* detail view*, adapted to orient and display specific source views from historic China Town locations in Boise, Idaho. (courtesy of Boise City Department of Arts and History)

Viewing scopes infer a spatial, historical relationship between source image and present-day physical setting, rather than demonstrating it. As this does not rely on the casual viewer's ability to align historical images with the existing viewshed, it poses a creative solution to some

of the awkwardness associated with side-by-side displays or composite views. It also offers a means of contending with otherwise obstructed or wholly occluded views. Invested with the apparent ability to "see" through walls, the China Town example illustrates what public historian Richard Rabinowitz has called such images' ability to "stimulate visitors by unsettling and dislodging their ordinary perceptual framing of the scene."[88]

A distinct obstacle accompanies the source-focused type, however. Given that the viewer cannot easily switch between historical and contemporary modes of looking without physically changing perspective, the possibility of accuracy is undermined to a minor degree. Likewise, the burden of proof in its accuracy and precision is placed largely on user trust, rather than in transparency or orienting visual cues within the viewshed. Ultimately, this drawback inflects its limitations as a vehicle for analytic inquiry or specific spatial comparison, relative to the other types. The source-focused type does, however, serve as an invitation to the curious, an opportunity to reconstruct the viewshed for themselves, or to imagine themselves transported through time (if not space).

Something of a middle ground exists with a third type, the open-ended format. Here, rephotographic research techniques are employed to station the source image at the appropriate camera station, again located and oriented to match the viewshed, but without a contemporary photograph added for comparison. Instead, orientation accuracy is demonstrated through visual connections with distinctive landforms and features, including cultural landscape features. The contemporary viewshed receives *de facto* primacy; the source image provides directly situated visual cues, its relationship to tangible landscape features inferred but not necessarily overtly stated. A recent example can be seen at the Pecos Ruins / Ancestral Sites Trail, part of an

[88] Richard Rabinowitz, "Interpreting in the Landscape: A Hebridean Perspective," *CRM* 17, no. 7, *Thematic Issue on Landscape Interpretation* (1994): 11.

archaeological and cultural landscape site within Pecos National Historical Park, near Pecos, New Mexico (Fig. 3-8); extensive archaeological excavations of Ancestral Puebloan midden stratigraphy, supervised by Alfred V. Kidder, generated source photographs from 1914–1929.[89] Care should be taken to distinguish recognition of this type from the general usage of historical photographic imagery onsite in cultural landscapes for interpretive or commemorative purposes, which may or may not reflect any specific relationship with the subject in geolocation or bearing.

Figure 3-8. Open-ended rephotographic concept implemented in the recent implementation of trail signage, view S-SE, as seen from the historical camera station at Pecos National Historical Park. Distinctive cultural landscape features provide a set of orientation cues (reference features) in the viewshed, including kiva elements, foreground topography, and 1717 Mission Church ruins.

The WhatWasThere Project software application, developed in Ann Arbor, Michigan, comprises an alternate, virtual approach to the same format type, geolocating source imagery on

[89] Aviation pioneers Charles and Anne Morrow Lindbergh visited the field site by air as Kidder's guests during the 1929 season, contributing several improvised aerial photographs of the Pueblo, using pastureland at the nearby Forked Lightning Ranch as a runway. These have become the basis for a somewhat different approach to rephotographic research by pilot-photographer Adriel Heisey; see Maxine McBrinn, ed., *Oblique Views: Aerial Photography and Southwest Archaeology* (Santa Fe, NM: Museum of New Mexico Press, 2015). See also Erik Berg, "The Eagle and the Anasazi: Charles Lindbergh's 1929 Aerial Survey of Prehistoric Sites in Arizona and New Mexico," *The Journal of Arizona History* 45, no. 1 (Spring 2004): 1-30; and Tamara Jager Stewart, "Charles Lindbergh's Little Known Passion," *American Archaeology* 20, no. 4 (Summer 2017): 23-25.

a software app to appear *in situ*, based on real-time user movement. Again, a rephotographic relationship is invoked, although its open-ended nature is clear in facilitating direct comparison between source image and its current viewshed itself, in place of two distinct, fixed images as a visual and temporal bracket. The possibility for multiple, varied comparisons over time is essentially infinite, illustrating the core of the open-ended concept. In addition to geolocating source imagery with essential explanatory description (e.g. date, author, and title), such tools organize camera stations as destinations, providing a navigational interface to interrelate multiple stations in sites within a scalable geographic context (Fig. 3-9).[90]

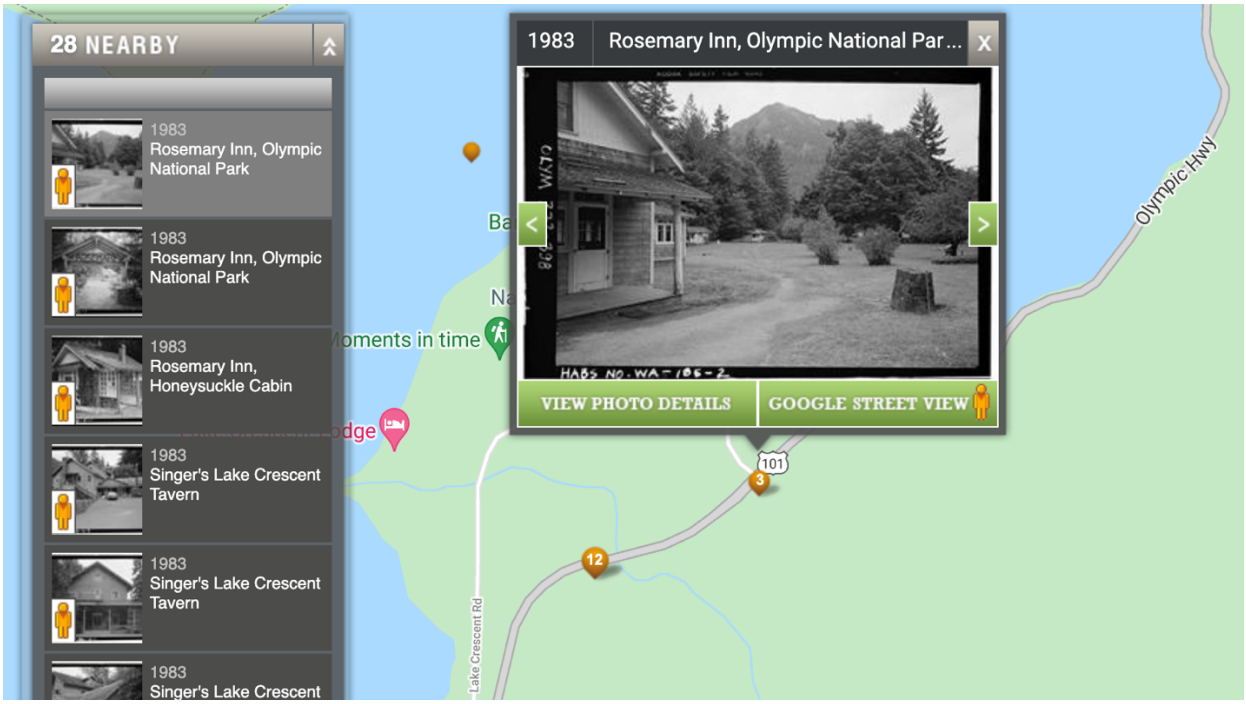

Figure 3-9. Sample extent from the WhatWasThere Project application, siting HABS survey images at the Rosemary Inn, an NPS-inventoried cultural landscape at Crescent Lake, Washington. (courtesy of Enlighten Ventures LLC, 2020)

Like many other geo-imaging or computational photography tools, the concept remains heavily reliant on the accuracy, precision, and available detail of its geodata infrastructure and

[90] At present, this network has crowd-sourced more than 6500 images internationally, predominantly oriented to historical architectural sites in urban areas, but also to various citizen-scientist interests and initiatives.

host device—not to mention signal connectivity—imposing distinct parameters on research applicability. This comprises a potential downside for applications within sites whose source camera stations have been substantially altered. In this case, source images are much more difficult to ground, consequently complicating the reconstruction and use of viewpoints. On balance, comparison between views remains somewhat approximated and invites guesswork.

In total, all three basic design types invite the viewer to engage with photo-visual implications of change over time in cultural landscape sites. Users may repeatedly return to observe, identify, question, and perhaps continue to wonder at one or more viewsheds and their distinctive features. The invitation, in turn, serves to articulate the fundamental suitability of rephotography as a specific mode of engaging with cultural landscape dynamics and their visual artifacts. For preservation practitioners, the same invitation should be understood as a potent tool for situating viewers in space *and* time, establishing closer visual links between historical and contemporary settings.

CHAPTER 4

METHODOLOGY

4.1 Introduction

This chapter and the following describe field research conducted in Sitka, Alaska, as informed by the analysis of selected photographs, a randomized subset of the pre-1930 Elbridge W. Merrill Collection. Its application embodies the test of an linked approach, interfacing selected rephotographic techniques with an existing cultural landscape characteristics (categories) framework. This coupling served in aligning and recapturing historical site views through the use of distinct cultural landscape features as reference points. Oriented to landscape description and preservation inquiry, this approach both draws upon and re-situates primary sources as visual evidence. Results suggest that framework-delineated reference points may successfully serve in locating and orienting views from previously unidentified camera stations in unfamiliar sites. These advocate for use of rephotographic inquiry as a heuristic in framing cultural landscape reconnaissance, photo-documentation, and monitoring strategies.

Repeat photographic techniques have been widely practiced as a means of analyzing landscape-based evidence over time in historical inquiry—notably since the mid-1970s.[91] A fundamental consistency in the function of camera lenses over time sustains the viability of recapturing and comparing historical views of place, despite evolving recording technology and media. Rephotographic methods seek to transpose two-dimensional media back into the three-

[91] A brief selection of examples include Rogers, Malde, and Turner, *Bibliography of Repeat Photography for Evaluating Landscape Change* (Salt Lake City: University of Utah Press, 1984); Webb, Boyer, and Turner, *Repeat Photograph,* 2010; Webb, Leake, and Turner, *The Ribbon of Green—Change in Riparian Vegetation in the Southwestern United States* (Tucson: University of Arizona Press, 2007); Forest History Society, "Repeat Photography Bibliography," Repeat Photography Collections For Sustainability and Working Forests, http://repeatphotography.org/biblio/ (accessed September 19, 2020).

dimensional space, often across substantial intervals of time (also depicted in Figure 2-8). Despite an extensive body of precedents surveyed in landscape-related applications in the western U.S., however, a literature survey suggests that informal, *ad hoc* efforts predominate rephotographic work specific to cultural landscape study, indicative of a gap in applied practice. As discussed in the previous chapter, this study proposes the use of the established NPS cultural landscape framework, developed in 1997 as a means to situate rephotographic documentation and monitoring practice with respect to cultural landscape preservation context. The intersection between these two research toolkits is practical. This study has therefore been developed around the premise that its application should be tested in an unfamiliar landscape, drawing from photographs not previously utilized for the purpose.

Now including more than 860 distinct sites within NPS purview, cultural landscapes distinguish places which "visibly portray" a lasting human impact.[92] Cultural landscapes also reflect the influence of the physical environment on its users over time, as the influence of climate, topography, and land cover, among others, becomes apparent in specific cultural traditions and land use practices. Harbor walls may be reinforced, paths paved, infrastructure replaced, or cleared space overgrown. Cultural landscape features, which distinguish identifiable, tangible products of human landscape processes for a given site, also embody typical visual subjects for photo-documentation practice and continued reference. These include trails, trees, structures, buildings, and mountains, among numerous other examples. This chapter's discussion

[92] Melnick, "Preserving Historic and Cultural Landscapes: Developing Standards," *CRM Bulletin* 3.1 (March 1980): 2; Susan Dolan, email to author, December 4, 2019. The tally of inventoried sites has increased nearly sevenfold in the past decade, compared with 124 as of 2010; see Manish Chalana, "With Heritage So Wild: Cultural Landscape Inventory in United States National Parks," *Preservation Education & Research* 3 (2010), 7-8.

rests on the recognition of such cultural landscape features as a visual network of identifiable reference points for photographic study.

The cultural landscape paradigm has, from its inception, framed discrete landscape features as intertwined with overarching landscape processes in a *dynamic* way; the visible configuration or disposition of features may well change as a function of time, and not necessarily at a fixed rate. Anticipating "ongoing growth, modification, and development" heeds the wisdom that landscape views do not remain static, and therefore require careful, repeated review over time.[93] Within a preservation ethos, this fundamental precept necessitates *cycles* of viewing and recording features over time in order to gather updated data. Robust feature documentation requires more than illustrative contemporary photography, acknowledging and even anticipating visible change can encourage thinking toward designing systematic approaches to selecting and carefully aligning photographic views. Complex challenges imposed by climate change variables in cultural landscapes—a sobering set of trends and events which exceed historical ranges of variation in seasonal phenomena—likewise underscore the need to think ahead, as well as look into the past, to reinforce consistency in visual evidence gathering, with respect to place-based landscape-evolution.[94]

Urging strategic growth in the use of analytical tools in cultural landscape preservation, historical landscape architect Cathy Gilbert has highlighted a lingering gap between uses of historic and contemporary views in recording cultural landscapes—a possible application for

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[93] Melnick, Daniel Sponn, and Emma Saxe, *Cultural Landscapes: Rural Historic Districts in the National Park System* (Washington, D.C.: NPS Park Historic Architecture Division, 1984), 2-3.

[94] Amy E. East and Joel. B. Sankey, "How is modern climate change affecting landscape processes?" *EOS* 101 (December 2020), https://doi.org/10.1029/2020EO152788 (accessed January 3, 2021); Christopher E. Johnson and Vida Germano, "Evaluating the adaptive capacity of cultural landscapes to climate change: Incorporating site-specific knowledge in National Park Service vulnerability assessments," *Parks Stewardship Forum* 36.1 (January 2020): 49-56.

rephotography.[95] GIS-centric visualization tools have since become commonplace in this respect (with reductionist tendencies and plan-view instincts in tow), yet a ground-level, experiential disconnect often remains apparent. This project heeds Gilbert's concern, albeit decades later, and revisits landscape rephotography as an opportunity to buttress consistency in photographic research and documentation practices used to inform research and future decision-making.

This chapter includes a discussion detailing the approach and considerations related to field research design and completion. Key topics include the synthesis of an organizing system (i.e. NPS framework for Cultural Landscape characteristics) and applied techniques derived from repeat photographic practice. As such, it demonstrates a basic test of a process intended to enhance the usefulness of one photographic documentation method as a facet of cultural landscape preservation practice. Components of this method were developed and refined during the course of study in 2017-2018 and applied to selected EWMC source records in 2019.

I have opted to adopt selected techniques which have been previously established in cultural landscape documentation practice in western U.S. sites and are appropriate for imaging in the digital domain. Photography and related documentation in the field were conducted manually using printed reference imagery, rather than generated through computational guidance software. Computational applications seek to guarantee accuracy through automating the placement and orientation of rephotographic camera stations in a software environment, yet their use also requires additional, supporting hardware, along with amenable operating conditions. Moreover, personal experiments have shown limitations relating to contrast detection, focus depth, and power requirements, in effect suggesting that a computationally driven field method

[95] Cathy Gilbert, "Cultural Landscapes and the New Technologies," *The Public Historian* 13.3 (Summer 1991): 109-112.

would trade additional cost, equipment, and distraction for observation focus and firsthand spatial awareness—a poor bargain in this setting.

This work contributes to a rich body of literature concerning American cultural landscapes.[96] Among these exist numerous examples of historic photographs used for historical illustration or descriptive view of current conditions. This chapter instead takes a different tack, demonstrating a field survey approach designed and developed with respect to first looking *through* the historical lens as a guide or set of cues for inquiry. The ideas and examples shown within are repeatable, demonstrate techniques useful in a wide variety of sites, and are not limited to the study area. As such, they are a practical step forward in the efforts to identify and clarify cultural landscapes as dynamic, detailed places.

The method featured here adapts a widely accepted set of characteristics for the analysis of landscape sites, applying them to the analysis of historical photographic views. These in turn serve as a guiding reference framework for applying rephotographic techniques in the landscapes themselves. Links between the established framework of cultural landscape characteristics and reference points commonly referenced in rephotographic techniques were initially explored through concept mapping in 2016-2017 (Fig. 4-1), formulated through firsthand experience with historic landscapes in the Pacific and Intermountain West. Discussion includes a set of demonstrative examples, as well as experiential observations and findings that emerged as a product of their implementation.

[96] NPS is by no means the exclusive guardian of these works, yet its physical and electronic collections have amassed an instructive conduit through historical, graphic, and technical approaches utilized over the past several decades. For an early compilation, see Katherine Ahern, Leslie H. Blythe, and Robert R. Page, *Cultural Landscape Bibliography: An Annotated Bibliography on Resources in the National Park System* (Washington, D.C: NPS Park Historic Architecture Division, 1992); a more current cross-section is accessible via the agency's Integrated Resource Management Applications (IRMA) portal, http://irma.nps.gov/.

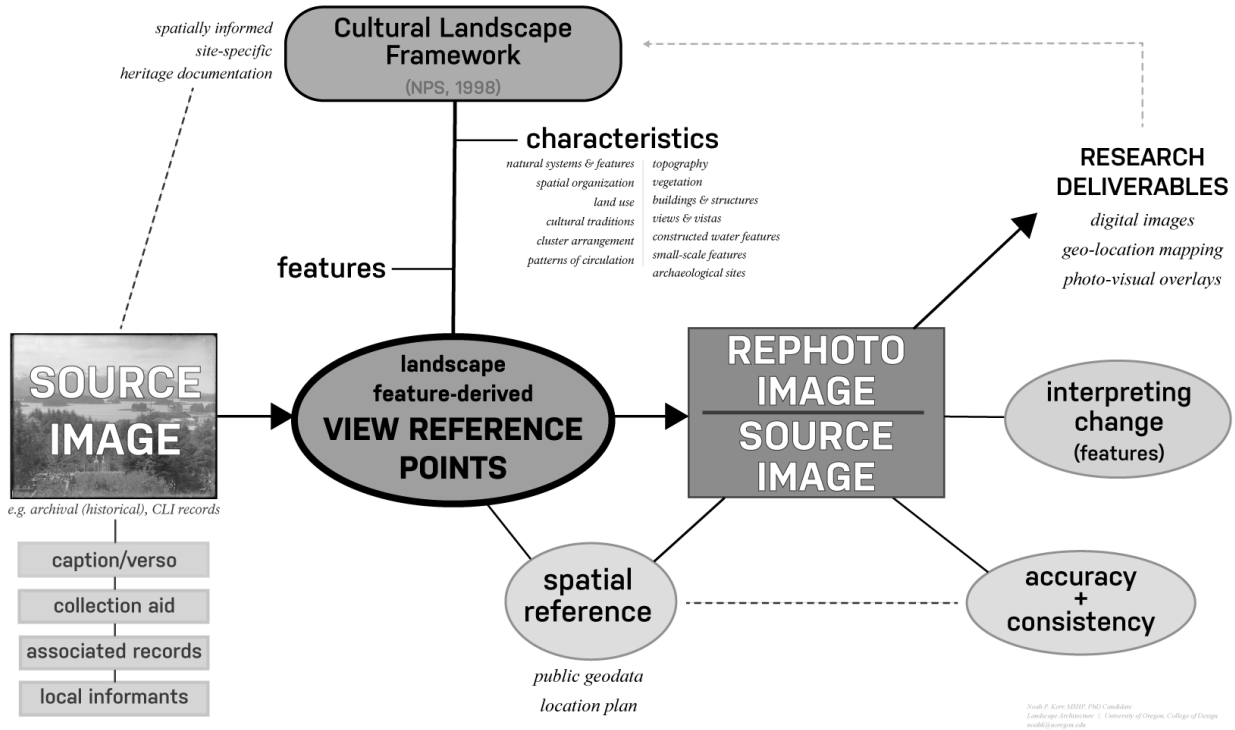

Figure 4-1. Example of a concept diagram developed to consider links between a cultural landscape framework and rephotographic practice. Several iterations were considered, ultimately emphasizing the need to identify distinct cultural landscape attributes within a given source as a core component of preliminary analysis, as well as establishing spatial reference. Foregrounding these attributes shaped development of a source selection design, including systematic selection of reference points for rephotographic analysis, used to establish and maintain coherent links between source and rephotographic viewsheds.

This research method is organized to encompass a preliminary phase of analysis, designed to identify and select an appropriate selection set of historical photographic plates as part of a comprehensive survey of the Merrill Collection. The next phase of analysis dealt selectively with the individual photographic images in the selected set. Here, each iteration of the previously discussed set of cultural landscape characteristics is applied as a framework to identify visual evidence of landscape features. These, in turn, were incorporated into a series of reference overlays, which, alongside supporting sources, provide the basis for rephotographic fieldwork.

4.1 Source Collection Overview and Historical Context

Elbridge Warren Merrill (Fig. 4-2) washed into Alaska along with a wave of prospectors, adventurers, and entrepreneurs at the turn of the 20th century. A news photographer and commercial portraitist from Eastern Massachusetts, Merrill arrived in Sitka in October 1899, following a failed venture to the Klondike two years prior.[97] Over the next three decades, he developed a local practice as a portraitist, illustrator, and national monument custodian, and would later come to be celebrated as the locale's defining auteur, "Sitka's Father of Pictures." Merrill's cumulative photographic legacy provides a cross-section of Sitka's early twentieth-century development. Notably, these images frame insights into many facets of the Sitka landscape—an extensive potential baseline for revealing and highlighting change over the prevailing century. As such, they embody an underutilized cache of historical knowledge, and with it the possibility of reconnection to Sitka places today.

E.W. Merrill (1868-1929) was neither the first photographer to record pre-war views of Sitka, nor the last.[98] Among others, Eadweard Muybridge (1830-1904), also notable for his work in Yosemite and San Francisco, photographed a handful of early landscape views during a visit commissioned to Alaska in 1868.[99] By the time of Merrill's arrival, photographers had turned their lenses to a range of local subjects, as seen in work by I.G. Davidson (ca. 1870s-1880s),

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[97] Brett Payne. "E.W. Merrill—From Cyanotypes to Sitka's Father of Pictures," April 26, 2011 (accessed February 12, 2018). https://photo-sleuth.blogspot.com/2011/04/ew-merrill-from-cyanotypes-to-sitkas.html.

[98] George Gmelch and Sharon Bonn Gmelch, *In the Field: Life and Work in Cultural Anthropology* (Oakland, CA: University of California Press, 2018), 146-147.

[99] Several albumen prints from Muybridge's negatives, made shortly after the introduction of albumen paper in the U.S. in 1872, survive in accessions of the George Eastman Museum (collection 7022). Other pre-20th century photographs, including views made by Edward DeGroff between 1886-1900, also predate Merrill's tenure in Sitka; see "Guide to Collection: Edward DeGroff, 1860-1910," PCA 91 Finding Aid, Alaska State Library Historical Collections. See also Beaumont Newhall, "60,000 Eggs A Day," *Image: Journal of Photography of the George Eastman House* 4:4 (April 1955), 25-27.

Edward de Groff (1886-1890), J.J. Breredon (1891), Frank LaRoche (1890-1902), and stereo cards produced by M.M. Hazeltine (1892) and T.W. Ingersoll (1898).[100]

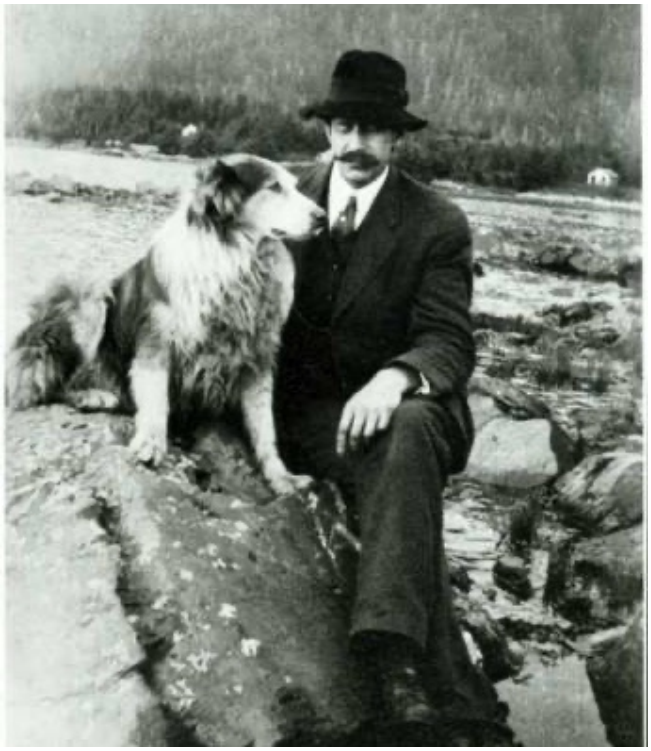

Figure 4-2. Portrait of E.W. Merrill, possibly photographed near Jamestown Bay, Baranof Island, Alaska Territory, c. 1913. (image: Alaska State Library, ASL P57-236)

Merrill's photographic activity a generation later is exemplary for its professional breadth and depth. Merrill practiced his craft as a permanent resident and citizen of Sitka, rather than a visitor or casual tourist. This contrast is visible in the diverse range of everyday subjects which survive in his collection, including local works projects and infrastructure, events, and properties. Considered across the arc of thirty years, this role enabled in his work an attention to a variety of

[100] *Photographers in Alaska, ca. 1878-1919,* ASL-PCA-341, Alaska State Library, Juneau, Alaska. https://jlc-web.uaa.alaska.edu/client/en_US/asl/search/detailnonmodal/ent:$002f$002fSD_ILS$002f0$002fSD_ILS:1742115/one?qu=54682912; Candy Waugaman, "Index to Photographers of Alaska," XLS spreadsheet, Finding Aids, Alaska State Archives and Records Management, https://library.alaska.gov/hist/hist_docs/indexes/CandyWaugamanPHTGRPHR.xls; see also Edward de Groff Photographs, ca. 1886-1890, ASL-PC91; Frank LaRoche Photographs, 1890-1902, ASL-PCA130.

Sitka's landscapes unavailable to short-term observers, who remained, by and large, preoccupied with romanticizing picturesque scenery along with the town's harbor front. The breadth of local subjects reflects a variety of geographic and topographic perspectives, as well as a record of composition choices which recorded sites inclusive of their physical context. Merrill eventually succumbed to pneumonia October 27, 1929—almost exactly thirty years after his arrival.[101]

Surviving Merrill is a body of work both professional in execution and extensive in its range of subjects.[102] His portraits of Native and Anglo subjects have furnished key evidence for ethnographic investigation and social history.[103] At the mention of Merrill's pictures, one Sitka resident proudly pointed out her grandmother among those Tlingit depicted in his work. But in a distinct majority of surviving examples, Merrill turned his camera to the surrounding landscape.

Seeking to reveal authorial intent or artistic motivation in the historical photographic record is a problematic endeavor. Why some sites and not others? Appreciating Merrill's work from a new, rephotographic standpoint, instead, urges us to consider the variety of roles he performed as photographer in Sitka. The products of his portrait work notwithstanding, the line between Merrill's commercial and altruistic use of photography as erstwhile documentarian is vague. This is exemplified perhaps in the lack of a clear distinction between his record of work with the visual conservation of Native Alaskan culture—not altogether unlike Edward Curtis—

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[101] United States Census, 1930. Database with images, *FamilySearch* (https://familysearch.org/ark:/61903/1:1:XHB2-7RL : accessed 10 July 2019), Elbridge W Merril [sic], Sitka, First Judicial District, Alaska, United States; citing enumeration district (ED) ED 35, sheet 9B, line 49, family 81. NARA microfilm publication T626 (Washington D.C.: National Archives and Records Administration, 2002), roll 2626; FHL microfilm 2,342,360; Alaska, Pioneer Home discharge index, 1913-1958," database, *FamilySearch* (https://familysearch.org/ark:/61903/1:1:7FXW-SBW2 : 2 May 2019), E W Merrill, 27 Oct 1929; citing Alaska Territory, United States, Residence, Alaska State Archives, Juneau; FHL microfilm.

[102] Sharon Bohn Gmelch, "Elbridge Warren Merrill," *History of Photography*, 19, no. 2 (1995), 159-172, DOI: 10.1080/03087298.1995.10442414.

[103] Sharon Gmelch. *The Tlingit Encounter with Photography* (Philadelphia, PA: University of Pennsylvania Press, 2008).

and his simultaneous role as a booster for non-native Sitka tourism farther afield.[104] Here, the question is compounded by his own motivations as entrepreneur; evidence of marketing efforts, postcards, curio sales, and extra-local showings of his prints as commodities all survive.[105]

Anglo and Native merchants alike sustained a brisk trade in "curios," or products for the tourist collectors. In addition to his own acquisition of traditional objects, as anthropologist Sharon Gmelch notes, we might also consider Merrill a collector by virtue of his *photographic* attention to Native Alaskan memorabilia and sites, at a time when Euro-American attitudes both romanticized and vitiated the communities and traditions that generated them.[106] In this sense, his exposures of moments and perspectives in the Sitka landscapes can be similarly appreciated. From a historic preservation standpoint, that same body of visual information compiles a lasting resource as a record of distinct, peopled moments affixed in time and space.

Unlike the sites themselves, Merrill's photographs are items that have endured removal from physical context; photographs are not themselves landscape features. Cultural landscape features, in particular, infer a type of recognition that can often be mapped in space (fixed), whereas photographic media is frequently removed from the location and transported elsewhere. The original physical location and orientation of the camera therefore embody a fundamental point of interface between physical and documentary sources. Through reconstructing this connection according to features which have *not* been lost, the rephotographic method may

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[104] Gmelch, "Elbridge Warren Merrill," 162, 169.

[105] United States Census, 1910. Database with images, *FamilySearch* (https://familysearch.org/ark:/61903/1:1:MPZK-YV4 : accessed 10 July 2019), Ellridge W Merrill, Sitka, Division 1, Alaska, United States; citing enumeration district (ED) ED 1, sheet 34A, family 242. NARA microfilm publication T624 (Washington D.C.: National Archives and Records Administration, 1982), roll 1748; FHL microfilm 1,375,761.

[106] Gmelch, "Elbridge Warren Merrill," 163.

therefore be considered a process for reuniting a virtual relic to its physical setting—even if temporarily.

Preservation theory recognizes the essential attribute of physical setting in informing a place's distinctiveness over time, understood as a facet of what American practitioners have understood as its unique "integrity," or the visible continuity of its defining elements.[107] This precept holds that location and setting both inflect the fundamental merit of place in orienting historical viewership, despite exceptions acknowledged for relocating transient historic specimens, such as aircraft, railroad stock, and marine vessels.[108] Recording these places through the auspices of photography, by extension, infers the possibility of multiple changes in the setting and location of the images generated, even while the historical resources themselves remain *in situ*. The inevitable exodus of photographic documentation—"the record"—from Sitka's landscape sites implies a separation—in perspective, as well as time and audience. Various prints and reproductions have found their way farther afield from Sitka (Fig. 4-3), including occasional appearances as products of a contemporary online market in antiquities.[109] Selected Merrill prints were also disseminated in the form of "real photo post cards" (RPPC), eventually making their way to addresses in locales like Orange, New Jersey, and Clearwater,

[107] Russell E. Dickinson, "Preservation Terminology," in *Archaeology and Historic Preservation: Secretary of the Interior Standards and Guidelines,* Washington, D.C.: National Park Service, 1983.

[108] Barbara Wyatt, "National Register Policy Clarification: Integrity Requirements for Settings and Locations of Locomotives and Other Rolling Stock," National Park Service, April 2009.

[109] Perusal of eBay offerings in Winter 2020-21 revealed more than two dozen probable Merrill images for sale, offered in various forms from North American and European sellers.

Florida.[110] Still others have been noted among halftone reproduction postcards marketed by Robbins Bros. of Boston, MA (c.1907-1912), printed in Germany.

Figure 4-3. Framed print of a c.1918 view by Merrill,* detail view*, showing engraved signature. This item was seen in a Seattle, WA, antiques shop, 2021. (author)

Unlike the plate negatives themselves, the fate of Merrill's tools remains essentially unknown. With the exception of a later, Kodak Eastman film model, all his cameras and equipment were apparently sold following his death; even records of these transactions are not known to have survived, at a time when flexible film technology was quickly outmoding gelatin-based, dry-plate methods and materials. As a source of physical evidence, such hardware may have otherwise offered specific, measurable insight into the working parameters inflecting Merrill's exposures. The height of box camera tripods, for instance, although relatively limited in

[110] RPPC instances can typically be dated after 1907, after Kodak began servicing and promoting the format.

adjustment fittings during this period, cannot be precisely measured. The range of motion of fittings, focus, and related camera functions, similarly, remains subject to inferences and guesswork. As a result, the collection of plate images becomes increasingly central as an informant in retracing views in three-dimensional space through careful inference and direct comparison.

What is clear is that Merrill personally adopted the notion of public responsibility for the stewardship of sacred Native Alaskan totems—a role reinforced through his contributions to a petition for national monument designation in 1910, and formalized by his appointment as an early custodian of the newly designated Sitka National Monument by NPS director Stephen Mather.[111] Sources also place Merrill's efforts from 1918 to1922 among projects including canopy management, conservation of the park's red cedar totem poles, and implementation of infrastructure and maintenance for "sightly spots with grandure [sic]," with the support of carpenters, a woodsman, a teamster, and painters.[112]

A modest, bronze commemorative placard overlooking Indian River Estuary also affirms this vocation for public memory (Fig. 4-4). In addition to Merrill's likeness, the placard showcases a large-format box camera in relief—a cue to even the casual viewer that the resulting photographs are themselves a source of lasting curiosity and local import. This feature itself was commissioned by the American Legion shortly after the photographer's death in 1929, completed in 1932, and installed prominently on a stone and concrete plinth at the National

[111] Scott Chamber, "Elbridge Warren Merrill," *The Alaska Journal* 7, no. 3 (Summer 1977).

[112] "Sitka National Monument, Early Years," *Sitka National Historical Park: An Administrative History*; E.W. Merrill, July 5, 1919, letter to National Park Service, National Archives Record Group 79.

Monument's entrance; it was later moved to a rock outcrop viewpoint south of Lincoln.[113] In addition to its commemorative functions, the relocated "Merrill's Rock" also embodies a reminder that landscape features remain unchanged only so long as the camera shutter allows—even when they are literally set in stone.

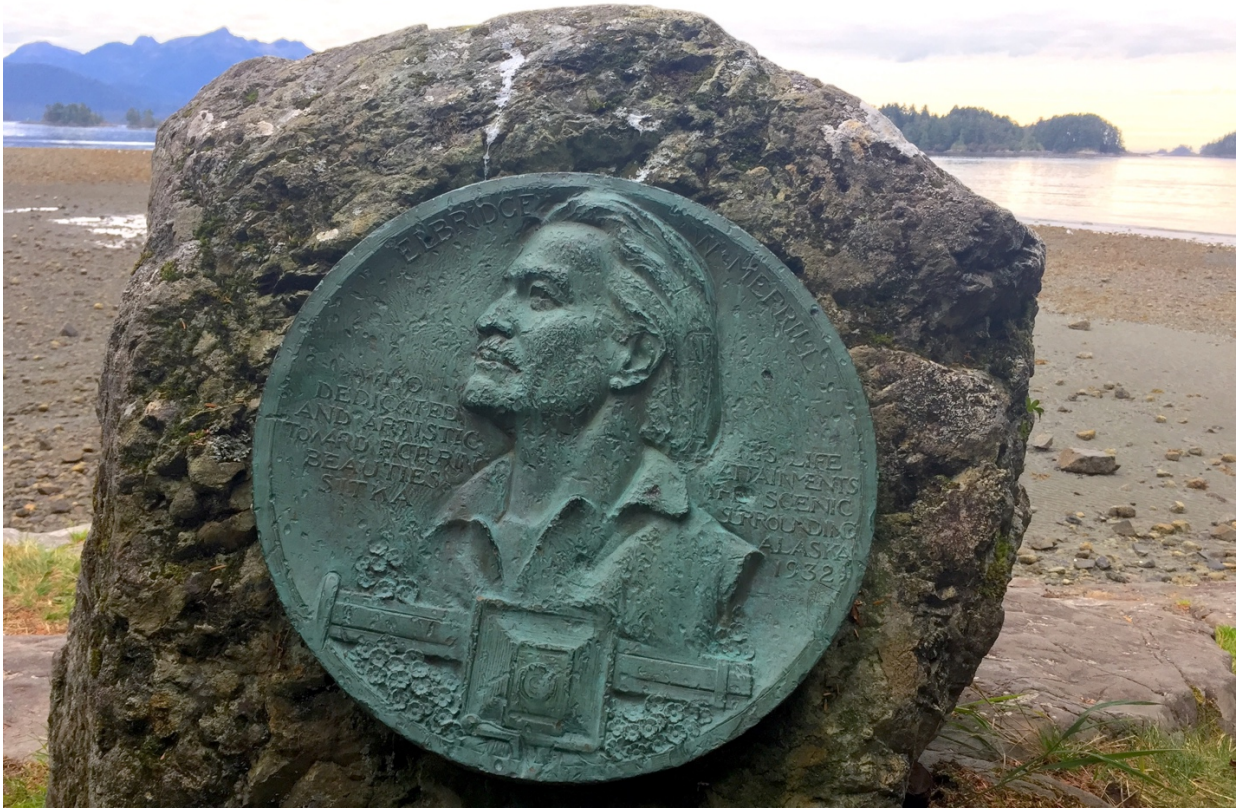

Figure 4-4. Commemorative placard located within the "Sea Walk" section of SITK, detail view [oriented S-SW, 2019]. Known as "Merrill's Rock," this cultural landscape feature was relocated following its 1932 installation near the National Monument entrance.

Following a series of unpublished rephotographic studies concerning sites in Oregon, California, and New Mexico from 2016 to 2018, the author sought to identify a broader collection of pre-war photographs suitable for testing in applied practice, as discussed in the following section. These opportunities reinforced the essential value of closely analyzing source

[113] Kristen Griffin, *Early Views: Historical Vignettes of Sitka National Historical Park* (Anchorage, AK: U.S. Department of the Interior, NPS Alaska Support Office, 2000), 39.

images according to a variety of spatially specific, distinct feature attributes, a technique not altogether dissimilar from cultural landscape practice with a variety of historical media. Further learning in this context underscored the usefulness of a diverse array of smaller-scale or distant features as reference points, often in contrast with the primary subject of an image's composition. A happenstance encounter on the part of the author's advisor brought the Elbridge W. Merrill Collection (EWMC) to attention, with great effect. This is an expansive collection of early 20th century plate photographs, housed at Sitka National Historical Park (SITK) in Sitka, Alaska, and an initial survey suggested a good fit for research development.[114]

Its museum collections notwithstanding, Sitka National Historical Park shares in the National Park Service's legal and ethical mandate to safeguard historical and cultural knowledge for the sustained benefit of the public.[115] Established in 1972, the Park's focus places a premium on the stewardship of "culturally and historically significant landscape that tells the story of Southeast Alaska Native peoples, signature totemic art form, the 1804 Battle of Sitka, and Russian exploration and colonization."[116]

Historical stewardship, as it relates to E.W. Merrill's photographs, is a matter of holistic value for the Sitka area, too, rather than a benefit exclusive to park lands: much of the community's patrimony of early 20th century photography is a byproduct of Merrill's practice, while gradually reproduced, retouched, and disseminated in various commercial media. For local landscapes beyond its legal boundaries, SITK is nonetheless an important nexus for the

[114] To distinguish among a vast array of NPS park units, agency nomenclature provides for a unique, four-letter code as a shorthand for each. SITK therefore refers to Sitka National Historical Park, resources, and personnel, as distinct from state or municipal place designations. Variations such as NPS-SITK reflect existing protocols used in Park Service records and information.

[115] 16 U.S.C. 2-4; 39 Stat. 535; 16 U.S.C. 461-467; 16 U.S.C. 470; P.L. 102-575.

[116] NPS, "Purpose Statement," *Sitka National Historical Park: Foundation Statement* (Anchorage, AK: NPS Alaska Regional Office, June 2012). 5. See also 36 CFR § 13.1802; 16 USC 1B;

collection. In maintaining a close geographic proximity between the plate negatives themselves and the precise locations where the vast majority were created, NPS management of the Merrill Collection continues to perform a key role in sustaining their cultural significance and research value. These plates have not been far removed from their historical and physical context. This proximity is also a pragmatic justification for use in this study.

The stewardship of historic photographic collections often guarantees a substantial geographic separation over time from the places they depict. In taking on the mantle of public artifact and material culture, substantial collections of plate negatives commonly find their way to distant regional or national archives for conservation and storage purposes. For numerous plate glass negatives like Merrill's, the facilities, expense and expertise involved in this endeavor are often prohibitive for most locales. Practically speaking, this separation effects a trade-off: a prolonged lifespan for the image at the price of divorcing the historical view from its real-world setting. Images' subsequent digitization and dissemination, although advantageous as a value-added investment in a broader intellectual community, also entails a collateral, intellectual cost, in further removing the image from its place of origin. By contrast, as a SITK holding, the Merrill Collection can be seen as something of a rarity in this regard, if not precisely an example of *in situ* preservation. Kept in place on Baranof Island, the collection preserves the connective tissue of context and view.[117]

The Merrill Collection itself is a substantial body of visual information. Acquired by SITK following the closure of the nearby Sheldon Jackson College in 2007, this set comprises 1,172 glass plate negatives, primarily 4"x5" format, created during a period between roughly 1899 and 1929 using dry plate photographic techniques. The original views which survive within

[117] In the case of many plates investigated in this study, museum facilities at the park have likely lessened that spatial distance, with respect to the photographer's studio on Jamestown Bay farther east.

this collection encompass a critical mass of historical evidence for local landscape sites during the period; copies and prints in collections farther afield resulted from a 1978 cooperative agreement, including those of the Alaska State Library.[118] Subjects and sites depicted range widely among Merrill's own interests in natural history, industry, Native Alaskan lifeways, the Russian Orthodox church, community events, and landscapes.[119] The focus of a 2016 NPS Centennial Challenge Project grant, the collection was awarded $105,000 for museum conservation and digital curation; the project was contracted to and completed by Chicago Albumen Works. The result is a trove of visual depth and detail within reach, yet one untapped from a rephotographic standpoint.

Public management of this collection has the expanded benefit of comprehensive, remote access via web-based galleries; selected plates could in turn be scrutinized in high resolution with NPS reference-grade scans via a Department of the Interior (DOI) Kiteworks file transfer protocol, recently discontinued. A research proposal was established on the merits of these primary sources, acknowledging the need to narrow and delineate the scope of inquiry with respect to a cultural landscape-specific approach. The proposal demonstrated the concept of a criterion-based model for identifying suitable data points, predicated on a robust cultural landscape framework.

The role of NPS as Sitka's principal cultural resource management partner agency shapes the context of local fieldwork. Its legal mandate as steward for the protection and public history has included Sitka lands since its inception in 1916, then a recent National Monument designee

[118] Other photographs attributed to E.W. Merrill also survive today within repositories farther afield, all of which appear to be digital versions of these copies. Alaska State Library Historical Collections in Juneau (ASL-P57) and University of Washington Special Collections in Seattle have both cataloged smaller assemblages of his work, although these images represent a small fraction of the scale of park holdings today.

[119] Elbridge W. Merrill photography collection, ca. 1897-1929. Details and Collection Scope. Alaska State Library, Historical Collections. PCA0057.

of the Antiquities Act under President Taft.[120] The Park's mission, encapsulated in the 1972 legislation establishing the Sitka National Historical Park, embodies a mandate to grapple with the dynamics of historical human conflict, physical environment, and cultural heritage, as an ongoing process in guiding changes which shape the Indian River Peninsula; effective stewardship today is predicated on identifying and documenting related landscapes and features.[121] Specific local instances of NPS-fostered historic preservation documentation practices include surveys of the Indian River peninsula, HABS surveys of Russian colonial built environment, and SJS campus features. Agency efforts at SITK remain a hub for cultural landscape-oriented research and practice, underscoring a goodness of fit for this study.

4.2 Cultural Landscape Characteristics: A Framework for Source Analysis

A rephotographic approach dictates that scrutiny be extended beyond the photograph itself, into the physical setting for the view. To organize this process, a cultural landscape framework provides a basis for identifying and characterizing key distinguishing features, a key step to reoccupying the historical viewpoint (camera station). This organizational tool emerged as a product of National Parks project research under the guidance of NPS chief historical architect Hugh C. Miller, beginning in the late 1970s, as a management response to culturally significant sites shaped by human interaction with an ecosystem over time; this response similarly recognized the need to better articulate everyday landscapes' distinctive components and processes, a perspective diverging from architectural and art historical modes of

[120] *Presidential Proclamation No. 959*, March 23, 1910 (36 Stat. 2601); Sitka NHP Administrative History, Appendix A.

[121] National Park Service, *Sitka National Historical Park: Foundation Statement* (February 2012).

description.[122] The result has been credited by landscape design practitioners as innovating "a working vocabulary for landscape preservation."[123] Where the framework itself is a conceptual typology, its application to physical sites remains visually driven: cultural landscape documentation practices overwhelmingly operate via researcher observation and assessment. This is a mode of inquiry plainly suited to interface with the photographic analysis.

As discussed in previous chapters, the established format of the cultural landscape framework recognizes thirteen types of landscape characteristics (or categories) (Table 1). Each functions as a thematic overlay, useful in categorizing and describing evidence of the processes and systems that characterize and distinguish the site. For the site photographer, this framework can also be understood as a source of tacit cues, used to better judge appropriate types, scale, and direction of views. These choices inflect the gathering of visual evidence, as well as communicate the location and relationship of various cultural landscape features. In short, the framework serves to organize an approach to articulating site attributes, echoing the purpose of its design and adoption by NPS researchers over the past several decades.[124] This framework has a symbiotic relationship with rephotographic techniques and can be adapted for viewing and

[122] Melnick, Saxe, and Sponn, *Cultural Landscapes*, 3-5. Richard Longstreth, ed. *Cultural Landscapes: Balancing Nature and Heritage in Preservation Practice* (Minneapolis, MN: University of Minnesota Press, 2008), 9; Arnold R. Alanen and Robert Z. Melnick, eds. *Preserving Cultural Landscapes in America* (Baltimore, MD: Johns Hopkins University Press, 2000), 3-6; Melody Webb, "Cultural Landscapes in the National Park Service," *The Public Historian* 9, no. 2 (Spring 1987): 82.

[123] Genevieve P. Keller and J. Timothy Keller. "Preserving Important Landscapes," in *A Richer Heritage: Historic Preservation in the Twenty-First Century,* ed. Robert E. Stipe. Chapel Hill, NC: University of North Carolina Press, 2003. 196.

[124] NPS, *Landscape Lines 3: Landscape Characteristics* (1997 variant, *Landscape Lines 3;* shorthand designations developed by author for project use with the Cultural Landscape Research Group, 2016-2017).

analyzing historical photographs, and, in turn, the viewpoint (camera station) from which they originated. This implementation of the framework serves as the basis of the research method.

Table 1. Summary table of Cultural Landscape Characteristics, adapted from NPS typology. (CLRG/Kerr)

Characteristic (Typological)	Reference Code	Characteristic Summary
Natural Systems & Features	NATS	Processes and materials in nature that have influenced historical modification or use of the land. This can include human response to geomorphology, geology, hydrology, ecology, climate, and native vegetation.
Spatial Organization	SPAT	The overall layout of spaces and the arrangement of physical forms and visual associations. This might include how other landscape characteristics - like circulation systems, views and vistas, areas of land use, and clusters of structures - define spaces within the landscape.
Cluster Arrangements	CLUS	The location of buildings, structures, and associated spaces in the landscape. Study area examples include harbors, crossroads, campus quadrangles, and park clusters.
Topography	TOPO	The three-dimensional configuration of the landscape surface characterized by features, orientation, and elevation. Historic features that illustrate how humans have shaped the ground plane might include earthworks, drainage ditches, knolls, and terraces. This also includes cultural or traditional adaptations of land use in response to natural topography.
Land Use	USE	Activities in the landscape that have formed, modified, shaped, or organized the landscape as a result of human interaction. Examples of land use features include fields, terraces, commons, cemeteries, parkland, and logging areas.

Table 1 (continued).

Characteristic (Typological)	Reference Code	Characteristic Summary
Cultural Traditions	TRAD	These features indicate practices that have influenced the development of a landscape in terms of land use, patterns of land division, building forms, stylistic preferences, and the use of materials. Totem carving practices and Russian Orthodox burial patterns are both local examples.
Circulation	CIRC	Historical systems for movement, including supporting spaces, features, and material finishes. Circulation features include paths, roads, streams, canals, highways, railways, and waterways, as well as local examples such as trail corridors and street alignments.
Vegetation	VEG	Vegetation features might be functional or ornamental trees and shrubs, including campus quadrangle plantings, woodlots, pastures, gardens, allees, forests, and grasslands.
Buildings & Structures	STRC/STRUC	Buildings are the elements of a landscape primarily constructed to shelter any form of human activities; structures comprise the functional elements constructed for other purposes, including many engineering systems. Sitka examples of these features include houses, schools, churches, pavilions, bridges, dams, power lines, retaining walls, and foundations.
Views & Vistas	VIEW	Views are the expansive or panoramic prospects of a broad range of vision which may be naturally occurring or deliberate. Vistas are the controlled prospect of a discrete, linear range of vision. Views and vistas can be defined by the composition of other landscape characteristics, such as a lookout structure or a view framed by vegetation.

Table 1 (continued).

Characteristic (Typological)	Reference Code	Characteristic Summary
Constructed Water Features[125]	CWF	Built features and elements that utilize water for aesthetic or utilitarian functions in the landscape, such as fountains, pools, ponds, cascades, canals, and reservoirs.
Small-Scale Features	SSF	Elements that provide detail and diversity for both functional needs and aesthetic concerns in the landscape. Small-scale features may include fences, monuments, road markers, flagpoles, signs, curbstones, and foundations remnants.
Archaeological Sites[126]	ARCH	The location of ruins, traces, or deposited artifacts in the landscape, evidenced by the presence of either surface or subsurface features. Features can include road traces, reforested fields, and ruins of farmsteads, mills, mines, irrigation systems, piers and wharves, or quarries.

Bringing this framework to bear serves several practical, operational purposes within rephotographic investigation. First, as a tool for reviewing complex site views, it provides an accepted means to simplify and organize the analysis of visible, tangible elements within a site. In this method, the photograph is approached not as a scene or aesthetic composition, but rather as a primary record of spatially related features—as a rational record of distances, proportions, and relative sizes. Similarly, individual features and forms can be examined individually, as well as with respect to others in the viewframe. The ability to identify and organize these features, in effect, offers the researcher a system of fixed reference points, to be compared against visible

[125] Constructed Water Features (CWFs) were not represented among the variety of features analyzed in this study.

[126] Archaeological Sites (ARCH) fall beyond the scope of this analysis as a distinct characteristic type.

features in the landscape. Second, in affirming the analytical value of these features, this framework anchors a consistent, deductive process for scrutinizing photographic evidence in order to describe historical conditions depicted in the view. This process, in turn, also provides an organized means to reoccupy and reorient photographic views in the field.

Finally, because source images record *past* views of the landscape itself, this approach argues for the fundamental need to compare and contrast Merrill views with contemporary sites. The edges of the plate image (frame) bound the range of evidence encapsulated in any given view, whereas the setting beyond the viewframe is abstracted in time. A basic grasp of landscape dynamics indicates that change in the site is both implicit and continuous. As a function of historical time, source image and landscape conditions will never precisely coincide again, inviting new opportunities for comparison. The method developed for this study is designed to facilitate that comparison, to be discussed in followings chapter. Shared notions of "history" reflect a fluid sense of public memory that can and do change. Photographic sources, by contrast, provide a brief fulcrum to re-affix dynamic conditions in space, with respect to given moments and lapsed conditions. The historical configuration of features and processes is fixed, albeit momentarily, along with the viewpoint (camera station) as a stable baseline for comparison with any future point.

As a means of reframing static historical evidence, the cultural landscape characteristics can be understood as a visual wayfinding aid among identified points in space, useful for relating the past view to its present physical context. Similar principles have been applied elsewhere to photogrammetry, orienting analyzing historical views as a source for dimensions of landscape features lost *in situ*, where little other documentation is available.[127] Likewise, this study argues

[127] Thomas Kane, "The Use of Reverse Perspective in the Deduction of Plans and Elevations from Photographs," *Bulletin for the Association of Preservation Technology* 9, no. 3 (1977): 30-38.

that reoccupying a historical view in the same physical setting extends beyond viewing landscape as a historical scene, per se, but instead as a useful and dynamic network of interrelated points, forms, function, and meaning. From a preservation standpoint, the use of rephotographic technique as a methodologic tool for the conservation of knowledge about a site rests with identifying, locating, and assessing landscape features—the ability to bring clarity in considering instances of change and persistence.

A key function of the cultural landscape toolkit is to apply that clarity to inform future treatment, or managed alteration, of landscape features. Treatments comprise an *active*, consequential part of cultural landscape preservation, often visible at a human scale. Appropriate treatment frequently requires evidence documented at a level of detail, perspective, and period of time ill-suited to the physical scale and remote distance of GIS imaging or aerial views, for which ground-level historical photographs are often suited. In many instances, continued historical research itself comprises an appropriate treatment measure for site stewards. This is particularly the case for sites associated with rich, diverse photographic collections, which encapsulate potential opportunities to delineate consistent baselines for future stewardship measures. The following sections demonstrate the basis for such a merger of rephotography and cultural landscape framework, as a practice suited to the interplay of archival research and treatment.

4.3 Preliminary Analysis of Rephotographic Sources

Research began with a preliminary phase of analysis designed specifically to identify among Merrill's preserved body of work a suitable subset set of images for rephotographic analysis and field application. Extensive archival preservation efforts conducted by NPS museum

staff and contractors amassed a comprehensive set of digital scans, reference-quality positives from the original, and glass plate photographic negatives. The Park has implemented thematic groupings encompassing an array of the collection's subjects (Table 2), which, with few exceptions, all depict views in the Sitka area and nearby Southeast Alaska.[128] Having additionally verified remote access across the whole of the collection, preliminary analysis began in earnest, encompassing a comprehensive remote survey of the collection, irrespective of thematic categories, approaching each image as a discrete primary source.

Subject category (thematic)	Number of plates	Percentage of EWMC holdings
"Town of Sitka"	199	16.9%
"Russian Orthodox Church"	63	5.4%
"Tlingit Community"	116	9.9%
"Native Regalia and Art"	81	6.9%
"Landscapes"	273	23.3%
"Portraits"	157	13.4%
"Sheldon Jackson School"	50	4.3%
"Activities, Groups, and Special Events"	51	4.4%
"Documents and Copy Photographs"	31	2.6%
"Natural History"	73	6.2%
"Tuxekan and Old Kasaan"	8	0.7%
[TOTAL]	1172	

Table 2. EWMC subject categories, as derived from NPS-SITK museum collection records.

[128] It remains unclear precisely when and how this category set originated. In any case, it is clear that, as an organizational framework, the collection's thematic groupings include a great deal of overlap. This has the effect of presenting a fairly skewed, overly compartmentalized sense of what the plates actually depict, and is therefore not useful as the basis for source selection.

The preliminary phase of research encompassed design and implementation of a set of criteria developed to assess potential sources for rephotographic application. This work included a comprehensive survey of park collection holdings to review each of the 1,172 photographs over several months in 2018-2019—a process made possible via remote access to the EWMC web gallery. To delineate an initial working selection, criteria-based analysis selected for images adhering to the following four parameters:

1. Relevance to terrestrial or maritime landscape subjects (i.e. rather than studio portraiture or museum objects removed from historic context);

2. An identifiable landscape location, as derived both from photographic evidence and contextual information (e.g. caption/metadata);

3. Potential to reoccupy physical camera stations, as distinct from visibility of image subject itself;

4. An identifiable set of multiple, discrete cultural landscape features.

Winnowing according to these internal limits therefore excluded studio portraits, for example, along with close-up detail views of Tlingit cultural objects in an indoor setting. Several studies of plants and animals, while certainly relevant to Sitka's landscape setting, lacked sufficient information to meet the second criterion. Some, including a variety of plates illustrating maritime vessels and activities, were effectively abstracted in location based on the orientation of the camera toward the horizon, with no land features visible; others featured interior, domestic views from unidentified buildings that no longer survive. Still other unknown coastal views may have originated elsewhere in the region, beyond Sitka itself, without apparent cultural landscape features to inform actual location. To maintain variability among spatial attributes and landscape features, repeated subjects (obvious duplication of viewsheds) were also

eliminated as candidate sources. Among others, filtering out these kinds of views illustrates the selection process as one of subtractive synthesis, rather than compilation (Fig. 4-5).[129]

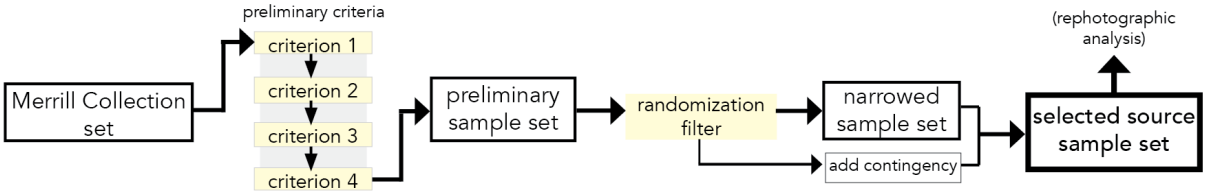

Figure 4-5. Flowchart showing components of the preliminary analysis for source selection, designed to support detailed rephotographic analysis and field application.

The resulting, preliminary subset, including 251 possible views, was next narrowed according to the research design, to establish a selection which could be realistically implemented, while meeting all suitability criteria discussed above. A randomization filter (deterministic random bit generator) was chosen to provide for a blind, unbiased selection within the larger, previously stratified aggregation of source photographs.[130] This step was included to satisfy the overarching need for dissertation tractability, recognized as an external parameter for research, particularly in light of the depth of detail required to effectively engage each source thereafter. Preliminary analysis notwithstanding, initial estimates suggested that source selection procedure should reflect the need to be realistic regarding the number of sites, considering time and financial considerations for fieldwork; prior experience, together with research faculty and expert advice, suggested a realistic benchmark of roughly 94-98 hours per selected source.[131]

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[129] Familiar in frequency edits or graphic equalization, subtractive synthesis has also been understood as akin to sculpture, where components or units of an interrelated, pre-existing whole are removed selectively in order to generate a refined result.

[130] Each item in the Merrill Collection retained a unique, five-digit catalog number assigned by NPS-SITK, according to agency collections management protocol. Catalog numbers alone were used as the basis of aggregation and selection.

[131] Perhaps inevitably, this estimate fell slightly short of the mark in practice.

Twelve unique sources selected in this step were therefore deemed a suitable source set with advisor approval, expanded to provide for an additional 25% contingency (three sources added). This final, source set totaled fifteen images, representing roughly 6.0% of criteria-eligible sources, or 1.3% of the total EWMC holdings. This selection generated a diverse spectrum of subjects and sites, deemed successful in encompassing sufficient variations among historical features (including numerous detail) representing distinct cultural landscape characteristic types. The result was considered an encouraging, initial indicator of viable preliminary criteria design for the research application.

As indicated above, the final selection set was not determined on the basis of prior familiarity with specific photographs, or with corresponding landscapes or viewsheds. Reference-resolution digital copies of the relevant photo plates were obtained as high-resolution TIFF files for all EWMC images contained within the selected set.[132] Each photograph received a unique alpha-numeric code for the purposes of each study, formatted "S-##," to designate the subject and camera station within the set (Table 3). Assigned codes range from S-01 through S-15. The order of code designations was assigned to sources and sites with respect to a preliminary work schedule, rather than any preexisting federal, historical, or catalog characteristics, including its order in the previous selection sequence. The same system thereafter served as shorthand designations to differentiate among sites within field notes, organize data tables, geospatial files, and map labels.

[132] All images subject to reproduction and use rights granted by Sitka National Historical Park Museum Program.

Source	SITK catalog	Randomization	Caption / Catalog Description	TIFF Dimensions (px)
S-01	SITK 03822	02	"Forest Path"	10054 x 14020
S-02	SITK 25496	08	"Indian River suspension bridge"	14962 x 12012
S-03	SITK 25775	05	"Sailors posing near Saanaheit Totem Pole and House Posts"	10077 x 15918
S-04	SITK 25925	14	"Indian River in winter looking toward upper bridge"	10181 x 16116
S-05	SITK 25603	12	"Cemetery Hill."	14944 x 11988
S-06	SITK 25391	03	"Exterior view of St. Michael's Cathedral"	12046 x 15155
S-07	SITK 25780	15	[n/a]	14914 x 11964
S-08	SITK 26390	13	[n/a]	25134 x 7750
S-09	SITK 26131	01	"Sitka town view from Russian Orthodox Cemetery"	15003 x 12036
S-10	SITK 26289	09	"View of Mount Edgecumbe and the western anchorage from the Russian Orthodox cemetery"	13999 x 10032
S-11	SITK 25926	06	"Steps to Maksoutoff [sic]"	16026 x 10152
S-12	SITK 25574	11	"Booth Fisheries Company."	14950 x 12012
S-13	SITK 25793	07	"Crescent Beach Russian Bishop's House and St. Peter's Episcopal Church"	13929 x 10020
S-14	SITK 26127	10	[n/a]	14989 x 12018
S-15	SITK 25819	04	"W.P. Mills House."	14058 x 10043

Table 3. Summary table for primary source view / site designations. Note: linked web images do not reflect the true resolution or size of each source item.

Each selected photograph received a detailed visual analysis. This process applied the cultural landscape characteristic framework in depth: each photograph received thirteen iterative passes of visual analysis, with each iteration focusing on a landscape characteristic type. The interface of framework and source image therefore resulted in a compiled set of distinct landscape features (Table 4), identified for each view, which could in turn be cross-referenced with historical survey maps, georeferenced satellite imagery, and contemporary conditions on the ground.

Refinements made early on in this cycle reflected the recognition of a feedback loop between characteristics within the method, wherein analysis of a given characteristic type revealed information relevant to another. The cultural landscape framework is rooted in an approach to site observations made from a variety of conceptual perspectives, ranging from large-scale systems to small objects, so as to avoid missing evidence in the field; its adaptation as a guide to navigating details in source photographs reflects a similar comprehensive approach. Holistically, the same interplay also offers the chance to cross-reference features identified among several categories.

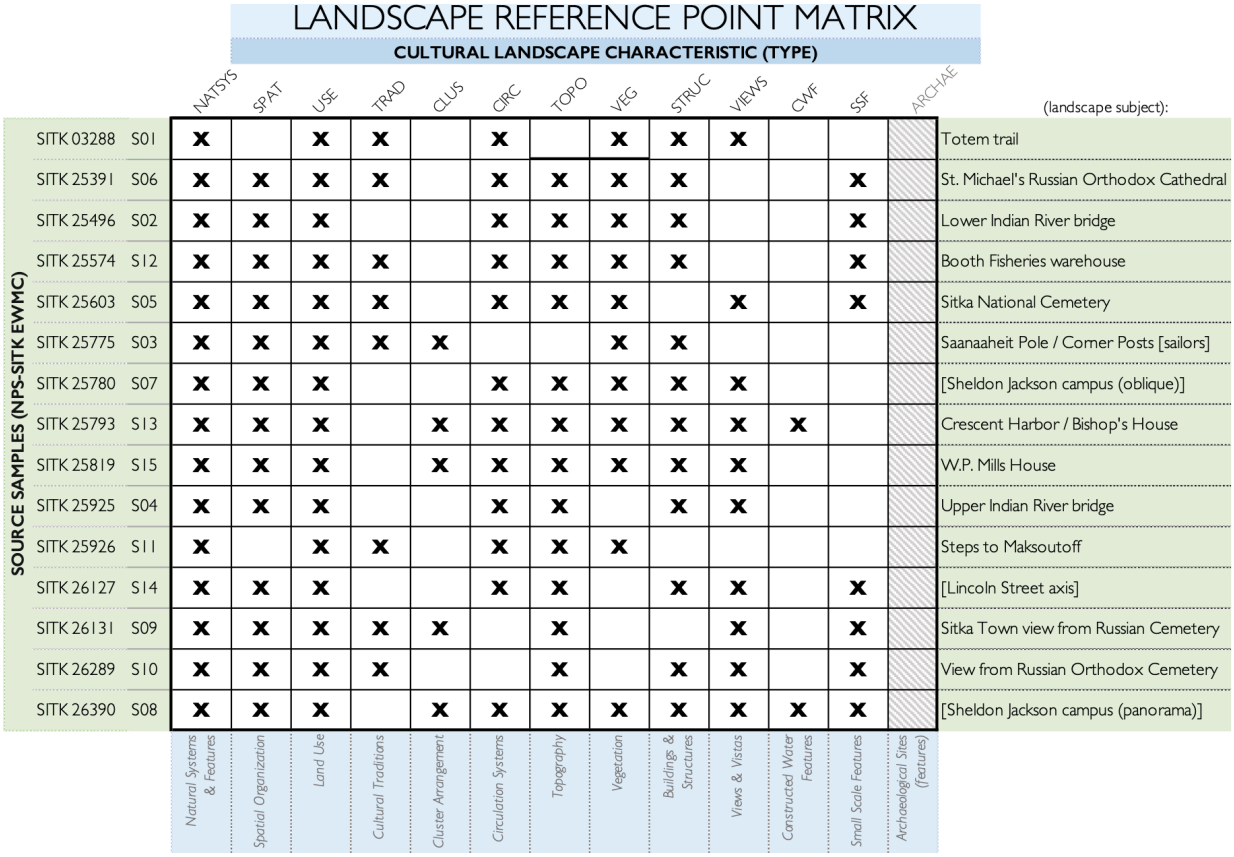

Table 4. Summary matrix of cultural landscape feature types identified in source selection.

4.4 Supporting Sources and Analysis

A study of local geospatial resources provided essential support for analysis of EWMC sources. These included published historical surveys, including Sanborn Insurance maps and USGS 7.5-minute quadrangles, as a means to contextualize, orient, and scale identified features and associated photographic detail. Remote sensing sources and geospatial visualization data, too, were consulted as GeoTiff and KMZ data, projected and layered through the use of USGS, State of Alaska, and municipal portals and viewers.[133] This geodata likewise provided a contemporary set of base imagery to use in comparing prospective sight lines with various

[133] U.S. Geological Survey, National Geological Map Database Project.

geophysical and cultural landmarks. Among others, the analysis of S-15 illustrates this supporting interface, situated within a visual ecotone between built environment and coastal landforms.

Figure 4-6. S-15, including the W.P. Mills house, view east, photographed circa 1916-1929. [Courtesy of National Park Service, Sitka National Historical Park, SITK 25819]

Supported by evidence derived from period Sanborn surveys, USGS quads, and NRHP nominations, the SITK collections label, "W.P. Mills House" quickly narrowed the probable image subject location for S-15 (Fig. 4-6). Identified as the site of an earlier Russian saltery as early as 1814, the island was eventually adapted for private residential use by 1916, linked with

the Sitka coast by a timber causeway (Fig. 4-7).[134] (Viewed with respect to the early 20th century municipal streetscape, this site comprises the coastal (southern) terminus of Maksoutoff Street.) The building depicted here is likely the product of services contracted with Seattle architect Louis L. Mendal a year earlier, constructed by Sitka builder Tim Demedoff on the earlier saltery foundation.[135] While no date information accompanies the original glass plate or its NPS collections record as to the photograph's creation, this analysis suggests that the historical window can be narrowed to sometime between 1916 and 1929.

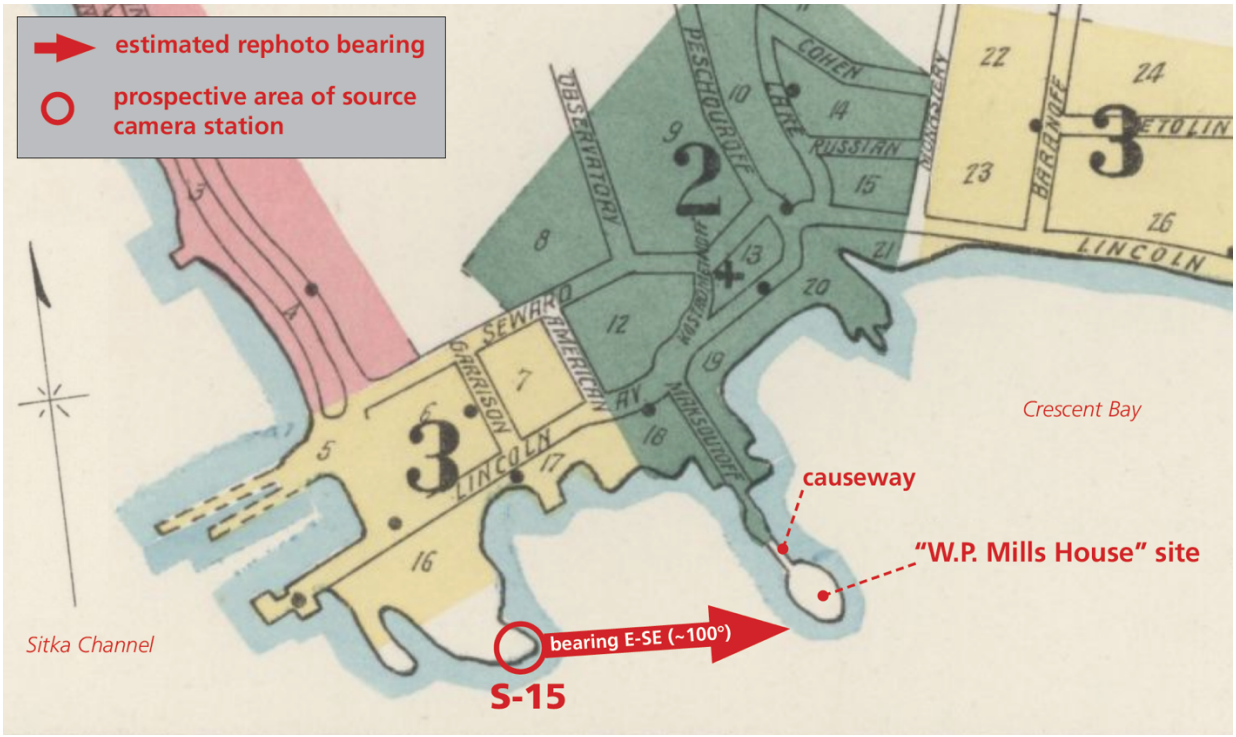

Figure 4-7. Excerpt from October 1914 Sanborn Fire Insurance Map index of Sitka, AK [Image 1], showing prospective area of S-15 camera station from the southern peninsula between Sitka channel and Crescent Bay, oriented E-SE. (LoC; annotations by author)

[134] National Register of Historic Places, W.P. Mills House, Sitka, Alaska (1977), NARA 77000226; see also Alaska Historic Resource Survey (ARHS) SITK-025.

[135] Ibid (NARA 77000226), Section 7-2.

Preliminary photo analysis derived a more specific set of orientation clues from scrutiny of the photo's fore-, mid-, and background areas. Select cultural landscape characteristics featured prominently here as organizing elements within the image frame—Natural Systems & Features (i.e. geomorphology, tidal conditions), Circulation (causeway), Buildings & Structures, and Vegetation (mature trees on island, massing of canopy cover at rear). Related features provided a set of reference points, to be considered in the field for reconstructing a more precise camera station position. These helped reconstruct perspective and depth of field with reference to more distant spatial relationships between specific features, which could later be compared onsite.

Field reconnaissance eventually confirmed the value of foreground detail within the image, considered both in terms of reconstructing Merrill's photographic choices and identifying changes in land configuration that followed his lifetime. Specifically, the image frame includes the edge of the waterline at or near low tide level, viewed on a nearly level plane at low elevation; sufficient detail is apparent to distinguish gravel fragments and kelp. Having located the prospective camera station spatially, according to the position and elevation of relatively static land features in historical sources, it was necessary to stage a preliminary comparison with contemporary site conditions.

How might possible coastal changes affect the ability to reoccupy Merrill's position? Would a point in the tidal zone along Sitka Sound be submerged? I began to consider the necessity of watercraft and marine tide tables, but contemporary aerial imagery and maps confirmed a more terrestrial perspective. The construction of the eastern footings for the John O'Connell Bridge to link Sitka with Japonski Island, completed in 1972, had resulted in extensive modifications to the peninsula through rock and fill, as substrate for a steep riprap

embankment bordering a highway; in effect, developments viewed within the photographic scene would be less obvious than those affecting the topography of the camera station itself.

4.5 Fieldwork Preparation

Following phases of preliminary data collection, analysis, and supporting literature review, a field research phase was next designed and refined to reconnoiter, confirm, and rephotograph landscape sites associated with the set of randomly selected EWMC sources. Data collected during the field test phase comprised rephotographic imagery derived from selected sources, supporting notes, geolocation points, and additional imagery. This process implemented a planned sequence of visits to fifteen distinct sites and their surroundings, all located on Baranof Island, Alaska (Fig. 4-8). Access to this locale required commercial flights from the continental U.S., via Seattle and Ketchikan, Alaska, using the nearby Japonski Island airstrip.

Firsthand exposure to the Merrill Collection originated through professional contacts at Sitka National Historical Park (SITK). Development of dissertation research design, however, ultimately guided investigation beyond the parkland itself. This is appropriate, given that Merrill's original photographic work predates the park's organizing legislation in October 1972 by more than forty years.[136] Most sites encompassed by these images show little physical overlap with present-day Park purview, instead comprising a mosaic of public and private interests. Fieldwork confirmed research sites designated S-01, -02, and -03 as exceptions, located within the NPS boundaries, while the property identified as the Russian Bishop's House features prominently in a view across Crescent Harbor (S-13), a cultural resource owned and managed by

[136] In this sense, it remains necessary to distinguish between Elbridge Merrill's legacy as Alaskan photographer and his tenure as early custodian of Sitka National Monument resources.

NPS-SITK since 1973. Totem poles and house posts depicted in Park sites embody fundamental themes within the Park's mission and administrative history, although these, in time, have moved among (and beyond) Park locations. Other sites are distributed across a mosaic of municipal, state, and private holdings, a cross-section not dissimilar during Merrill's own lifetime. Public access or rights of way enabled access to camera stations, such as in the case of the Russian Orthodox Cemetery, a hilltop parcel heavily screened by woodland and recolonized forest canopy.

Figure 4-8. Geographic distribution of selected EWMC sites, Sitka vicinity, Baranof Island, Alaska. (base imagery and symbol configuration by Maxar/TerraMetrics; annotations by author, 2020.)

Reconstructing and documenting source views required examination of landscapes beyond their photographic frame. The scope of research therefore included reconnaissance of physical site surroundings from several different vantage points, prior to and during rephotographic work. This included comparative techniques used to ground-truth previously identified landscape features, and, where possible, a pedestrian survey of the surrounding context. In several instances, a consideration of the context of landscapes beyond the immediate viewframe helped to recall the axiom that views may work both ways (Fig. 4-9).

Figure 4-9. Snapshot of Lincoln St. streetscape and terminus, view W-SW, as seen from the belfry of the historic, reconstructed St. Michael's Russian Orthodox Cathedral. This view roughly approximates a reverse perspective from the axis of of S-14, offset slightly to the south. (Inset: SITK 26127)

A comprehensive, multi-season field survey of viewshed sites fell beyond the scope of this study. Due to the diverse nature of research site locations, landscape viewsheds vary widely in physical scale and historical conditions; in some cases marine coastlines and islands encompass recognizable features located multiple miles from the lens, while others depict areas a handful of yards deep. Instead, research methods were designed primarily to situate rephotographic efforts according to previously identified reference features. In the case of known bridgehead locations related to the reconnaissance of upper Indian River channel, safety considerations were likewise a factor in delimiting the scope.

The timing of field investigation, completed during the week of September 8–14, 2019, was designed with several factors in mind. Background knowledge of climate and weather history and projections for the Sitka area suggested that wet-season conditions would make detailed tasks (e.g. fine-motor control required for fine equipment adjustment or data log) especially difficult outdoors over extended periods, possibly also wreaking havoc on document and data management needs, as well as travel; NPS-SITK staff confirmed that variability, including rain and fog, would likely increase during August and after September. More importantly, planning took into account how seasonal swings might affect basic visibility needed to study selected viewsheds, which are located primarily amid coastal littoral—a climate ecotone—or wooded understory.

Seasonal shifts in available daylight are a distinctive attribute of Alaskan geography; locales in the central portion of the region, for example, see consecutive weeks of winter darkness. By contrast, Sitka's SE location within the "Inside Passage" exposes field sites to much less extreme variation in daylight or darkness between summer and winter solstice (Fig. 4-

10).[137] Beyond its effect on working conditions, the window of opportunity is also limited by the unsuitability of earlier morning and late afternoon periods associated with a low sun position (azimuth), when potential difficulties arise for recording suitable photographic detail amid shadowing and extreme contrast. The need to situate working hours among a brief handful of days during this period further precluded winter fieldwork.

2019	Sunrise/Sunset		Daylength		Astronomical Twilight		Nautical Twilight		Civil Twilight		Solar Noon	
Sep	Sunrise	Sunset	Length	Diff.	Start	End	Start	End	Start	End	Time	Mil. mi
8	6:17 am ↗ (78°)	7:38 pm ↖ (281°)	13:21:14	–4:46	3:53 am	10:02 pm	4:49 am	9:07 pm	5:38 am	8:18 pm	12:58 pm (38.5°)	93.650
9	6:19 am → (79°)	7:36 pm ← (281°)	13:16:28	–4:46	3:56 am	9:58 pm	4:51 am	9:03 pm	5:40 am	8:15 pm	12:58 pm (38.1°)	93.626
10	6:21 am → (80°)	7:33 pm ← (280°)	13:11:41	–4:46	3:59 am	9:54 pm	4:53 am	9:00 pm	5:42 am	8:12 pm	12:58 pm (37.8°)	93.601
11	6:23 am → (80°)	7:30 pm ← (279°)	13:06:55	–4:46	4:02 am	9:50 pm	4:56 am	8:57 pm	5:44 am	8:09 pm	12:57 pm (37.4°)	93.576
12	6:25 am → (81°)	7:27 pm ← (279°)	13:02:08	–4:46	4:05 am	9:47 pm	4:58 am	8:54 pm	5:46 am	8:06 pm	12:57 pm (37.0°)	93.552
13	6:27 am → (82°)	7:25 pm ← (278°)	12:57:21	–4:47	4:08 am	9:43 pm	5:01 am	8:51 pm	5:48 am	8:04 pm	12:57 pm (36.6°)	93.527

Figure 4-10. Summary of daylight calculations which informed the research design for fieldwork planning. Note the period of civil twilight, which served as a daily cutoff point, at which point the sun rests 0-6° below the landscape horizon. By this time, pronounced shadow artifacts and overall decline in visibility affect working conditions.

In addition to the overall availability of light and practical working conditions, preliminary analysis highlighted the opportunity to examine the seasonal and daytime (diurnal) conditions reflected in each selected EWMC view. All original plates were created during daylight hours, almost certainly without the benefit of artificial light (i.e. flash lamp or powder); the interplay of daylight conditions and landscape features therefore shaped the resulting historical record. Although the limitations of the selected source group made potential repetition of precise timing impractical within a single field visit, it is worth acknowledging these as avenues for future exploration.

[137] Sitka daylight at the Summer Solstice spans nearly 18 hours, differing from much of the continental U.S. by several hours per day. By contrast, the Winter Solstice begrudges little beyond 8 hours from dawn to dusk.

CHAPTER 5

FIELDWORK

5.1 Introduction

Site-specific photographic surveys endeavor to record for decisionmakers a visually descriptive sense of a cultural landscape's status in time, an integral component of methods and media appropriate for cultural landscape preservation practice, used both within and beyond NPS-managed landscapes.[138] Enduring links between a photographic viewframe and the camera's corresponding location and orientation casts historical photographs as what scholars have called "an indexical connection" to the physical world. Archaeologist Thomas Andrews and historian Susan Buggey have likewise noted that specific landscape views offer a lasting, valuable "repository of information, ready to be required."[139]

The same level of scrutiny infers an enduring analytical value embedded with many historical photographs. Some views may serve as a ground-level record of identifiable landscape features, in turn expressing this value as the opportunity to revisit past conditions or make precise comparisons against a historical baseline. Archival photographs remain chronically underutilized, however, as an anchor point for systematic, robust analysis among cultural landscape practitioners. Elsewhere, this same opportunity anchors rephotographic work

[138] *Landscape Lines 5: Graphic Documentation* (Washington, D.C.: NPS Park Cultural Landscapes Program [nd]).

[139] Eric Margolis and Jeremy Rowe, "Methodological Approaches to Disclosing Historic Photographs," *The SAGE Handbook of Visual Research Methods* (Thousand Oaks, CA: SAGE, 2011), 340; Thomas D. Andrews and Susan Buggey, "Authenticity in Aboriginal Cultural Landscapes," *APT Bulletin: Journal of Preservation Technology* 39.2-3 (2008): 66.

concerned with urban development, rural land use, vegetation change, and disaster recovery.[140] "The fundamentals of choosing vantage points will not change," Mark Klett argues, "and new technologies will not end the need to gather new information."[141] The changing contexts of photographic media and viewership in the digital age notwithstanding, rephotographic methods remain both valid and timely as a cultural landscape preservation tool—particularly with respect to the wealth of historical views housed in public repositories.

5.2 Field Research Area: Physical Context

Sited in an ecotone between land and marine environments, Sitka is located on the western coast of Baranof Island on Sitka Sound (Fig. 5-1). Situated in the Alexander Archipelago in Southeast Alaska, temperate rain forests of Western Hemlock and Sitka Spruce situate the island within a temperate coastal ecoregion along the Gulf of Alaska.[142] Baranof itself spans more than 1,600 mi^2 (4140 km^2), including the entirety of Sitka National Historical Park and portions of Tongass National Forest. Steep inland mountain terrain continues to influence human habitation and development patterns, which are primarily focused along low-lying coastal areas such as the City and Boroughs of Sitka. Together with effects of seasonal weather patterns, this multifaceted topography offers a practical testing ground for rephotographic survey.

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[140] Judith L. Meyer and Yolanda Youngs, "Historical Landscape Change in Yellowstone National Park: Demonstrating the Value of Intensive Field Observation and Repeat Photography," *Geographical Review* 108.33 (2018): 387-409; Thomas R. Vale, "Vegetation Change and Park Purposes in the High Elevations of Yosemite National Park, California," *Annals of the Association of American Geographers* 77.1 (1987): 1-18; Christopher Burton, Jerry T. Mitchell, and Susan L. Cutter, "Evaluating post-Katrina Recovery in Mississippi using rephotography," *Disasters* 35.3 (2011): 488-509.

[141] Klett, "Repeat Photography in Landscape Research," in *The SAGE Handbook of Visual Research* Methods, ed. Eric Margolis and Luc Pauwels (Thousand Oaks, CA: SAGE, 2011), 130.

[142] G. Nowacki et al, *Ecoregions of Alaska and neighboring territory* [map] (Reston, VA: USGS, 2001), http://agdc.usgs.gov/data/projects/fhm/akecoregions.jpeg.

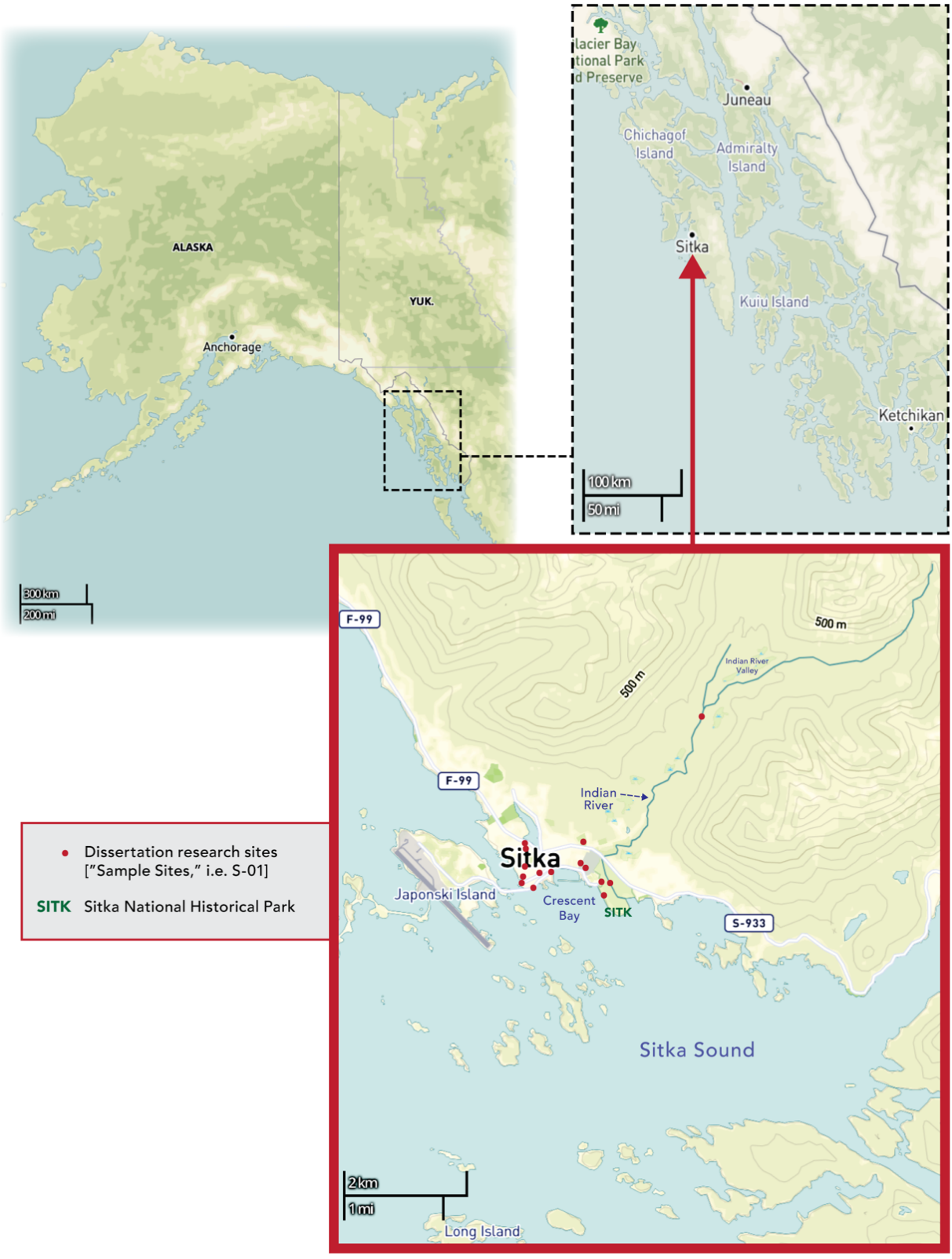


Figure 5-1. Physical context for research sites. (USGS / National Geological map Database; layout by author)

Baranof Island's western edge is characterized by distinct landforms. Steep, forested uplands exist in relatively close proximity to low-elevation slopes near the coastline, the result of long-term interplay of volcanic formation and glacial erosion. From a variety of vantage points found along Sitka's marine shelf, distinctive summits (and landforms) surround the viewer, including Mount Verstovia (3,354ft+SL), Picnic Rock (2,550ft+SL), Middle Sister (3,543ft+SL), and Harbor Peak (1,988ft+SL), along with the Mount Edgecumbe crater rim (3,202ft+SL) on nearby Kruzof Island. More than a scenic backdrop, however, these landforms and others together comprise an advantageous, visible network of reference points (Fig. 5-2), useful for the deductive process of locating source image sites and orienting smaller features recognized within them.

Figure 5-2. Sitka's commercial core, view NE, from Castle Hill summit.

Limited level terrain exists along the marine shelf between the Sitka coast and its upland interior. It is therefore often possible to identify specific existing summits, slopes, or distinct

shoreline points among primary source imagery; preliminary analysis highlighted one or more in 80% of these images—a good showing for the cultural landscape characteristic of Natural Features and Topography as a distinct type of visual evidence relevant to the characteristic-based (framework) focus of this investigation.[143] While their inflection of the Baranof skyline was indisputable in composing and framing Merrill's work, this topography also invites the researcher to reckon with the effects of their apparent spatial configuration, form, and relative scale.

For field reconnaissance and data collection, the size and shape of these reference points constitute an important large-scale asset, particularly when considered in light of the infinitesimal rates of geomorphological change apparent above the tree line. The geological landforms themselves are by no means unchanged when considered over the course of millennia, yet they appear relatively static across the comparatively brief interval of a single century. Historical images and the physical landscape itself, however, are not identical. Sites are fundamentally dynamic as time passes, while a photographic negative and its reproductions depict a frame limited to one instant. This study acknowledges that limitations are posed by subjective experiences related to viewing and interpreting photographs and does not seek to infer original authorial intent.[144] The photographs adopted as primary sources within this investigation can, however, be viewed as reasonably analogous visual evidence of factual past conditions for a given site—what historian Alan Trachtenberg has called a cognate for "the raw materials of written history."[145] Similarly, this work adopts the strategy of interfacing disparate photographic

[143] Exceptions include S-01, -02, and S-11.

[144] Sandweiss, "Image and Artifact," 194; Trachtenberg, "Through a Glass, Darkly," 121.

[145] Trachtenberg, "Through A Glass, Darkly," 121-122.

moments, and inherently contrasting conditions, using the same physical location as common ground. As such, the process of identifying, analyzing, and reoccupying the location of a known photograph can be viewed as a forensic resource for viewing a landscape in detail.

Landform recognition also draws from essential navigational tools, both analog and electronic. This became particularly evident while cross-referencing individual photo analyses with historical and contemporary map records of the city and boroughs area, including islands in Sitka Sound. Detailed topographic maps and layers provided further clarification for prospective sites and were repeatedly examined using the USGS topoView and 3DEP Viewer software applications (2016) at 25m, 5m, and 1m intervals.[146] Aerial imagery provided additional detail during remote studies of prospective research sites during Winter – Spring 2019 preliminary analysis, expanded with aerial survey images of the Indian River area provided by NPS-SITK.

Historical change inevitably alters rephotographic views beyond expectation, in some cases, as landscape features are added, modified, or lost entirely. Here, specific historical map resources provide useful deductive clues. In the case of S-12, the mid-ground "Booth Fisheries Company" building signage was clearly legible, along with the structure's general pier-side orientation at midday, yet offered few immediate clues as to specific geographic location. No such enterprise survives today, although the building's form and backdrop suggested the likelihood of its location in a commercial harbor area. Studied in conjunction with maps recorded in October 1914 by the Sanborn Fire Insurance survey (perhaps the best available contemporary map depicting commercial enterprises by name and type), however, a possible alternative location quickly emerged along the edge of Katalin Street. During site reconnaissance, it became apparent that the contemporary pedestrian route closely followed social trails worn along the

[146] Topographic data during this stage of research also referenced print and GeoTiff versions of the 1:25000-scale Sitka A-4 and -5 quadrangles (NAD83 datum).

same alignment above the harbor wall, as recorded in the S-12 source view. The distinctive Native Alaskan watercraft then sited alongside comprises a small-scale feature linked with the ceremonial return of cultural artifacts to Sitka following the 1904 Louisiana Purchase Exposition and 1905 Lewis and Clark Centennial Exposition; identifying and tracing the unique Saanaheit war canoe to Sitka's Totem Square required supporting literature illustrating the mutually interdependent nature of sources.[147]

Much of Sitka's human activity during the past century is concentrated within the narrow coastal strip of terrain near sea level.[148] Consequently, many of the selected source sites are located within relatively easy-to-reach terrain along marine terraces, rather than the more rugged montane or sub-alpine zones found inland. Practical byproducts of this spatial configuration were found to include reduced travel distance and elevation gain to be traversed among locations, more time available per site and its surroundings, and less overall stamina required to complete a consecutive survey of fifteen individual viewsheds spread across discontiguous locations.

One exception, S-04, remains a notable outlier, influenced by the variability familiar in late summer weather. Access to the site, nestled well into the Upper Indian River valley in Tongass National Forest, offers a case in point, requiring the better part of a day's hike.[149] These conditions also underscore other practical considerations, ranging from awareness of changes in river level and channel location to the need to identify and contend with potential safety hazards

[147] *Alaska totem poles at the Lewis and Clark Exposition* [1905], A2004-002, City of Portland (Oregon) Archives; NPS-SITK Administrative History; Ann Chandonnet, *Alaska's Inside Passage* (New York: Compass, 2006), 160.

[148] Prior research has also noted Merrill's use of a private cabin on Mt. Verstovia, above the Indian River Valley, distinct from his studio space in Sitka's business district. Inland mining operations, along with the American military buildup of the area during WWII, comprise broad exceptions in land use, yet did not take place until after Merrill's lifetime.

[149] Poor trail conditions have prompted evident repair and construction efforts earlier in the summer 2019 season.

in riparian and forest terrain.[150] Consultation with NPS resource managers and staff proved essential in clarifying and preparing for these circumstances, particularly those involving chest waders, shallows fragrant with decomposing salmon, and apparent brown bear activity during the seasonal Coho run. Along with a survey of investigations conducted elsewhere in more extreme conditions—alpine studies of Morrison Bridgland's survey photography in the Canadian Rockies, for instance—ground-truthing prospective locations within upper Indian River itself offered a memorable lesson in the influence of Alaskan ecology and climate on experiential study and stamina.[151] Constant rain guaranteed unfamiliar footing as both an intellectual and literal proposition.

Known historical resources further underscore the visual influence of topography here, including products of evolving 19th Century encounters between Native Alaskan and colonial Russian (and thereafter Euro-American) groups. Several Russian Orthodox sites, for example, are prominent in city topography and streetscape alike.[152] The belfry of Cathedral of St. Michael the Archangel, or St. Michael's Russian Orthodox Cathedral (SMROC), first constructed 1844-1848, anchored the *de facto* core of the Sitkan residential and commercial streetscape and skyline during Merrill's lifetime, as its reconstruction does today (Fig. 5-3).[153] The associated Russian

[150] Confirming a probable S-04 location involved repeatedly entering and exiting river channel, a process delineated by steepening banks upriver. In a period of heightened brown bear (*Ursus arctos sitkensis*) feeding during the salmon run to these same points, scrutinizing landscape features required a different level of attention to detail while working thigh-deep among the drifting piscine carcasses. Similar considerations also influenced the approach to S-02.

[151] In the case of some of Bridgland's alpine camera stations near Jasper, rephotographers' access required helicopter flights. I.S. MacLaren, *Mapper of Mountains: M.P. Bridgland in the Canadian Rockies, 1902-1930* (Edmonton, AB: University of Alberta Press, 2005), 217-219.

[152] As distinctive cultural landscape features, each played a role in guiding the rediscovery of original camera locations within several research sites.

[153] SMROC was designated as a National Historic Landmark in 1962 (NRIS Number: 66000165), following detailed documentation of existing construction by the Historic American Buildings Survey (HABS index AK-17, SITK-1)

Bishop's House property is sited above the arc of Crescent Harbor along its primary access route (Lincoln St.), managed and preserved with landscape elements according to SOI Standards by the Park Service. The historic Orthodox Cemetery above Observatory and Marine Streets, Russian Blockhouse (albeit reconstructed and shifted in location), and various clerical memorials nearby all occupy distinctive hilltops and upland knolls above the coast and human landscape. Viewed through twin cultural landscape framework lenses of topography and land use, these elevated points enhance recognition of connections between historical and present-day camera stations in a number of associated sites.

***Figure 5-3. A portion of the Sitka business district skyline,* view W-NW, *as seen from Harbor Drive. St. Michael's belfry is apparent among dominant features,* center left.**

5.3 Field Research Area: Public Historical Context

Baranof Island encompasses a diverse group of more than 400 formally recognized cultural resource sites, many of which are included in existing inventories. A wealth of

with Mission 66 funds the previous year. The timing of these measures was fortunate, allowing for a detailed reconstruction in wake of a catastrophic fire in 1966. Owing to this level of detail, the reconstruction itself now retains significance as a National Historic Landmark property.

vernacular landscape features also characterize these sites, however, beyond the current scope of the National Register. These have yet to receive wider evaluation or recognition as significant elements of the historic environment, yet nonetheless remain distinct and identifiable in form, material, and detail—visible both in Merrill's plates and *in situ* at their original location. Examples include the Lincoln Street harbor wall and the flight of steps set into the hillside near the intersection of Kaagwaantaan (Seward) and Marine Streets. For the research method, attention to vernacular landscape features is key. As discrete, tangible points and patterns, they can be understood as a key source of visual and photographic reference among the dynamic settings shaped by persistent cultural and environmental change.

5.4 Fieldwork Procedure and Work Schedule

Field research in Sitka was staged from campus facilities at the historic Sheldon Jackson School (SJS), originally the Sitka Industrial and Training School for Native Alaskan students. The SJS campus has been recognized for its historic significance since 2001, both as a National Register-listed historic district and a National Historic Landmark for its controversial role in transforming Alaska Native cultures through forced assimilation-focused education policies. This designation encompasses at least 18 historic architectural and landscape features.[154] Many of these originated with the Presbyterian mission-funded development of a new campus quadrangle in 1910-1915, realized through early design work by the New York firm of William Orr Ludlow

[154] Edwin B. Crittendan, *The Architecture of Sheldon Jackson College Campus* (Sitka, AK: Sheldon Jackson College Press, 1991).

and Charles Samuel Peabody in 1910-1911. Quadrangle buildings and plantings have been the focus of multiple historic preservation projects since 2010.[155]

Although defunct as a private residential college since 2007, following enrollment and financial shortfalls, the transfer of SJS campus facilities to the non-profit Alaska Arts Southeast, Inc. has reinvigorated their education-driven use as Sitka Fine Arts Camp (SFAC). SFAC provisions for artist- and research-in-residence housing proved advantageous, particularly in light of high local lodging and food costs associated with the locale's reputation as seasonal destination for environmental tourism. The SJS location guaranteed hiking-distance proximity to a majority of the research sites, including two located within the historic landscape of the quadrangle itself (S-07, S-08); distance from accommodations in North Pacific Hall to both locations measured under 300ft (91.5m). Overall radius of the fieldwork area is 2.05mi (3.31km), accounting for sites found within the boundaries of Sitka National Historical Park, Tongass National Forest (Upper Indian River), and the City of Sitka itself.

Following an initial reconnaissance of the project area, detailed site visits were planned and organized according to an overarching schedule, reflecting a daily sequence and workflow designed according to geographic proximity and access (Fig. 5-4). The workflow took into account projected daylight and solar azimuth for each day; NOAA tide tables also factored in several cases.[156] An additional time contingency was budgeted to mitigate possible weather delays or other unforeseen complications. Developing this workflow marked a refinement to the proposed research design, as a means of more carefully accounting for the specific demands of

[155] HABS AK-105-I (LCCN ak0513); NRHP (NRIS 72000193); *Metal Worker, Plumber, and Steam Fitter,* Volume 75 [January-July 1911], January 14, 1911 (New York: David Williams Co., 1911), 84. A handful of unpublished student reports also summarize SJS preservation project; see Althea R. Wunderler-Selby, "Fraser Hall Restoration Report," 2018, SFAC Historic Restoration Internship Program, Sitka, Alaska.

[156] Initial reconnaissance was not feasible in the case of S-04, due in part to its rescheduling and location as a geographic outlier.

more than a dozen discrete locations in varied terrain. Ultimately, a detailed schedule proved a valuable asset in the need to balance overall efficiency with the demands of the detail-oriented focus for evaluating and rephotographing individual sites. This balance also tested the usefulness of systematic source analysis prior to field application, as refined from the early research design.

	Sunday Sept. 08	Monday Sept. 09	Tuesday Sept. 10	Wednesday Sept. 11	Thursday Sept. 12	Friday Sept. 13	Saturday Sept. 14
DAYLIGHT		7:24AM	7:26AM	7:28AM	7:31AM	7:33AM	7:35AM (sunrise)
AM	(travel) Boards EUG 7:10AM Arrive SEA 8:55AM Boards SEA 11:10AM		**S-07** (SJC quad) **S-08** (SJC panorama)*	**S-06** (SMRO Cathedral) **S-14** (Lincoln St. axial)	**S-11** (Observatory steps?) **S-09** (cemetery viewS)* **S-10** (cemetery-Edgecumb)	[contingency]	[contingency] ----- 9:30AM cutoff ----- Return to SIT **Boards SIT 11:00AM**
[12PM]							
PM	1:10PM: arr. SIT, 1:45PM: SJC lodging check-in 3pm: orient site routes, overview / walk project sites	**S-02** (SITK Totem trail) **S-01** (SITK Saanaheit) ~**S-03** (SITK lower bridge)	**S-04** (SITK upper Indian River bridge)* **S-05** (Natl Cemetery)*	**S-12** (Booth Fisheries / Katalin-Lincoln NW) **S-13** (Bishop's/harbor)	**S-15** (W.P. Mills house)	[contingency]	(travel) Arrives SEA 3:55PM Boards SEA 6:50PM Arrives EUG 8:30PM
SUNSET	8:38PM	8:35PM	8:32PM	8:29PM	8:27PM	8:24PM	
finish/prep:	*__battery/spare check* *__data backup* *__log prep*	*__battery/spare check* *__data backup* *__log prep*	*__battery/spare check* *__data backup* *__log prep*	*__battery/spare check* *__data backup* *__log prep*	*__battery/spare check* *__data backup* *__log prep*	*__battery/spare check* *__data backup* *__pack*	

*** solar azimuth consideration**

Figure 5-4. Fieldwork preliminary schedule and check-sheet for study area.

Activities for this phase of research were localized in the City and Borough of Sitka, where much of Merrill's photography originated. Reconnaissance and rephotographic investigation of field locations spanned the week of September 8–14, 2019, requiring an average of 9 hours per day outdoors.[157] This period also included consultation meetings with cultural resource, museum collections, and interpretive staff at Sitka National Historical Park and on the Indian River estuary, as well as with other public and private property managers and users. The

[157] Air temperatures during this period ranged between 50-61°F, featuring consistently high humidity, daytime winds reaching 12mph, and varied precipitation.

intended purposes of consultations were threefold: (1) notify managers and staff of intended research activities and locations; (2) perform a firsthand survey of the original glass plate negative set, in order to verify image orientation and condition; and (3) follow up with staff observations to confirm or refine site identification.

Consultations prompted expert insights on the part of park personnel into recognized changes in NPS-SITK-managed sites over recent decades. In the case of bridgeheads and topography specific to the Indian River area, a dynamic period of flood events after Merrill's lifetime became apparent. Such insights repeatedly underscored the often-incomplete nature of historic photographs as historical evidence, requiring supporting sources, careful scrutiny, and flexibility in the field. They also served as a reminder of the diverse range of perspectives brought to the act of viewing photographs, whereby individual experience and professional training shape what is familiar or noticed in an image.

Consultations at NPS-SITK provided a valuable opportunity to examine each of the original plate negatives firsthand (Fig. 5-5). This experience served its intended purpose, but also underscored just how vital the collection's comprehensive digitization has been for detailed study of individual photographs. Like the landscapes they depict, the plates themselves cannot be divorced from environmental changes; emulsion layers showed the past effects of temperature- or pH-related aging in several cases, compounding challenges related to the inherently brittle nature of the plate glass itself (Fig. 5-6).

Figure 5-5. Original glass plate negative comprising SITK 25780, primary source for S-07.

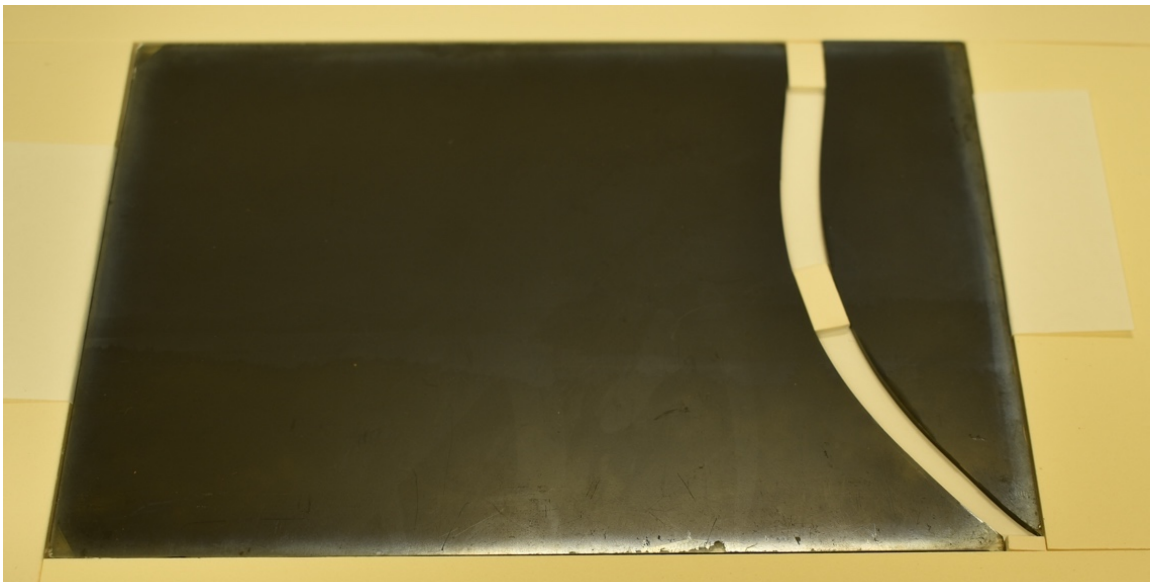


Figure 5-6. Original plate comprising SITK 26289 [S-10], showing (pre-existing) damage and stabilization measures used in the archive setting. Some loss of gelatin adhesion is visible near the lower plate edge.

NPS-SITK preservation efforts seek to protect these artifacts of place and time in an appropriately managed museum archive but cannot entirely arrest their ephemeral nature.

Digitization steps undertaken in the context of Chicago Albumen's stabilization work, therefore, embody public resource stewardship with implications reaching beyond vault storage. In translating views of local landscape features and conditions into the digital domain, this curation successfully extends and disseminates primary evidence of the past into the scope of rephotographic inquiry. This rephotographic study, in turn, reflects the viability of continued reconnection between view and site.

It remains neither practical nor appropriate to return the fragile plate negatives themselves to their respective sites of origin. The curation of their contents at high resolution has, however, facilitated an alternative as full-scale digital surrogates, which are both portable and resilient. Reference-grade copies, printed according to original dimensions and resolution, provide a means to reconstruct the historical viewpoint (camera station). Once the position and orientation are determined, these views emerge from abstraction and comprise an avenue to bridge more direct comparisons with the landscape sites as they exist now, across time. This imagery enables opportunities to reoccupy these historical perspectives as a means of synthesizing moments of visual past and present. With respect to linear time, such opportunities can also be seen as opening the way to sustaining the potential for long-term viewing, monitoring, and analytical needs among Merrill's many viewsheds.

5.5 Photographic and Spatial Orientation Tools

Photographic tools were chosen and prepared as a system for use in the field, based on experience in previous rephotographic experiments with various devices and parameters. These choices reflect a net balance between portability, cost, and the specific needs of rephotographic operation in landscape settings. Together, a combination of tools was selected to ensure a stable

platform on uneven terrain, in order to manually isolate and secure specific, independent axes of individual camera (lens) movement in the form of elevation (raise up/down), rotation (clockwise/counterclockwise), horizontal roll (left/right) and inclination (forward/backward), and depth—systematic means of fine-tuning view adjustments once the likely spatial position was located onsite (Fig. 5-7). Offset adjustments to vantage point, according to these "six degrees of freedom" could then be noted and logged in real time, along with geospatial information.

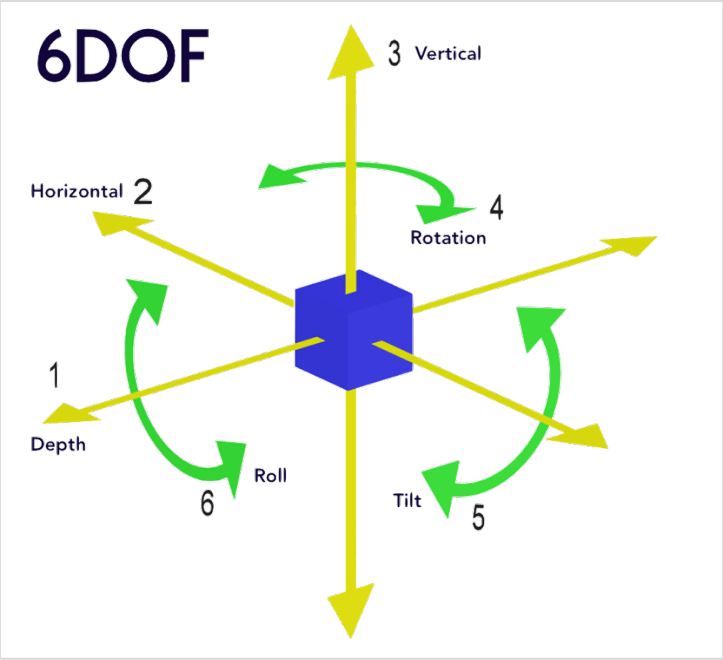


Figure 5-7. Conceptual diagram "6DOF [six degrees of freedom]," expressing a principle for understanding discrete spatial planes in rephotographic camera orientation. (diagram by Laurens van Lieshout, 2009)

Weight, portability, and cost factors informed the choice of a Nikon D5600-series compact single lens reflex (DSLR) camera for field rephotography. Several large-format systems were initially considered in the research design and then discarded, despite an interest in dissecting and repeating historical views with analogous technology, as a function of sheer cost and weight for travel, technical, and weather concerns. In order to facilitate onsite scrutiny and

adjustment, this selection also suited the ability to operate a separate viewing screen, as well as the use of an electronic (remote) cable-release to minimize camera vibration and subsequent image distortion. Sensor dimensions were also taken into account (23.5 x 15.6mm), with each resulting image recording 24.2 million pixels of resolution. Ultimately, the concession that reference-grade source scans would exceed the resolution of DSLR photographs embodies a compromise between functional tools and ideal visualization features; the DSLR system, in exchange, builds color-profiled imagery into its record.

While in many ways basic, this configuration made display capabilities outside the viewfinder possible in real time, by means of a live viewing display. This offered an essential reference in that the display screen could be overlain with variations on predetermined electronic grid lines (Fig. 5-8), utilized in order to compare and organize the apparent distance, size, and spatial relationship among reference points within specific areas of the camera's current viewframe. Doing so enabled consistent, iterative comparisons between current and historical views, in effect refining the accuracy of rephotographic image composition. Moreover, it implied a discrete cycle in the process of assessing each view—looking, cognition, and decision-making—to acknowledge and respond to qualitative differences between historical evidence and current conditions in the landscape. These comparisons enabled a heightened awareness for cues as to the products of landscape processes over time, including features not previously identified as overt reference points.

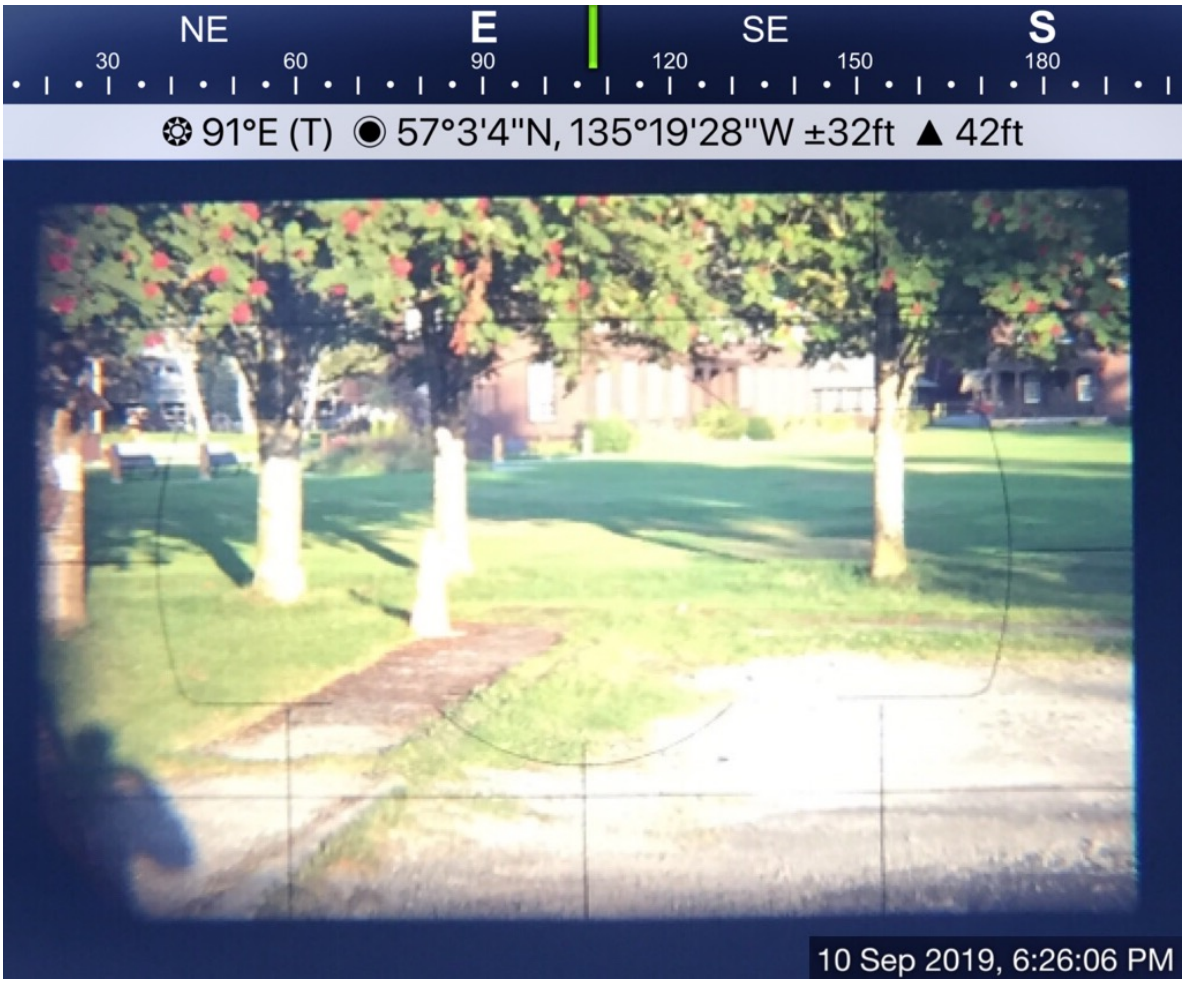


Figure 5-8. Mobile snapshot taken through live viewfinder, demonstrating one variation of gridlines used to compare image composition, recorded during study of S-07 cultural landscape features.

The camera mount was coupled with an aluminum RC2-type quick release system to enable efficient assembly, disassembly, as well as stability onsite.[158] This configuration was paired with a 3-way pan and tilt tripod head, indispensable for its design in isolating and fine-tune rotation and tilt movements in small increments (as contrasted with a ball-type mount, which is inappropriate for this purpose, based on its inability to isolate adjustments within a single plane of movement). For each camera station, head mount and tripod could first be set in a level, plumb configuration, using twin bubble levels to establish a working datum, and then

[158] Manfrotto 200PL (3157N).

adjusted accordingly in any one axis of movement as required. This mount was based on the use of a Davis & Sanford CarbonLite X10 70" tripod, selected with respect to weight and height adjustment parameters. Together, this system needed to approximate the basic height and stability of Merrill's equipment on a variety of terrain and slopes, function smoothly according to numerous coarse and fine adjustments in wet and dry conditions alike, and cope with long distance travel.[159] All tripod components were repeatedly cleaned, lubricated, and tested prior to use in Sitka.

Although several lenses were planned as a contingency, including variations on telescopic and fixed types, field surveys were accomplished using basic Nikon AF-S Nikkor format lenses, measuring between 18 and 300mm. Camera and lens selection excluded the use of external digital flashes, in the interests of avoiding simulated lighting in outdoor settings. Likewise, telescopic zoom use was kept to a minimum in order to mitigate distortion and vignetting, or the perceptible darkening of image edges and corners.

Combined as a system, these tools enable the rephotographer to organize, refine, and make detailed comparisons in a relatively stable viewing environment, in effect mitigating the range of variables at play in achieving clear, accurate rephotographs in the field. Use of a cable release incorporated an essential means of minimizing distortion from shutter release. A stable viewing and recording environment also increased the efficiency and tractability of the field schedule, in turn expanding on time allotted for site observation and pedestrian survey of viewpoint areas. The case of S-15 (W.P. Mills House) proved a necessary exception, in that fieldwork traced the probable camera station to a slope too extreme for tripod use without

[159] Eventually, it became clear that this tripod mount would do an excellent job retaining the smell of dead salmon from the Indian River channel, following work for S-04, and well after the conclusion of field research.

significant alteration or equipment damage; here, additional effort was required to orient and stabilize rephotographic viewing from the ground plane.

To refine the location of rephotographic camera stations, use of compass bearings allowed for comparison between EWMC images and contextual sources, supporting survey maps of the same field of view, and present-day views from the identified site. A compass-driven approach to orientation also provided reliable means to identify and record the camera lens azimuth in real time, once the position and orientation of the camera was finalized. Readings for each camera station were referenced with respect to magnetic north, as opposed to true north, in order to utilize both analog and digital tools.

In the field, baseplate and lensatic compass (centerhold method) were repeatedly checked to confirm basic viewshed orientation with respect to known, fixed landmarks. An unfamiliar setting made (literally) getting my bearings doubly important in this respect. Referring to the visibility and form of selected cultural landscape features (identified as reference points during preliminary analysis) were found to accelerate this process by substantially narrowing potential areas of the viewshed consideration. Specific bearings were likewise key to situating the relative centerpoint of an EWMC image as a line of sight within its broader physical setting, thereby narrowing the potential complexity of locations, with points visible above both the photo-historical and present-day horizon, due to the dynamic range of elevation which exists over a relatively short distance from the coast inland. Depending on the viewer's location and orientation (azimuth, 1-360 degrees), the apparent space between points such as the Verstovia peak, Sisters, and foreground features could be compared against those distances fixed in an

EWMC source image.[160] The configuration of islands in and around Sitka Sound likewise provides a fixed set of topographic waypoints/landmarks for nearly 180 degrees of visual reference beyond the coastal landscape itself. Considering compass bearings also provided a means of recording camera lens orientation in the event of needing to correct the position.

Detailed notes also comprise an integral component of the fieldwork. This was seen both in the technique of capturing qualitative reconnaissance observations specific to each initial site visit, and logging specifics pertaining to rephotographic decisions thereafter (Fig. 5-9). Previous experience recommended the value of pencil and water-resistant notebook here. These tools operated in tandem with a waterproof storage clipboard, for managing copies of high-resolution reference images, printed on opaque cardstock. The latter were lined and marked as needed, drawing on Klett's example documented in the 1998-2000 Third View surveys, including measurements and corrections made from source and viewfinder comparisons, using both pencil and permanent ink.[161] Together, these techniques aided in viewing (and reviewing) both images and sites with increased precision and awareness, and clarified specific changes among cultural landscape features.

[160] Because differences in lens construction are inherent, resulting views may be scaled according to matching proportions.

[161] Klett et al, *Third Views, Second Sights,* field notes and film [Xlinked Media files] (Santa Fe, NM: Museum of New Mexico Press, 2004).

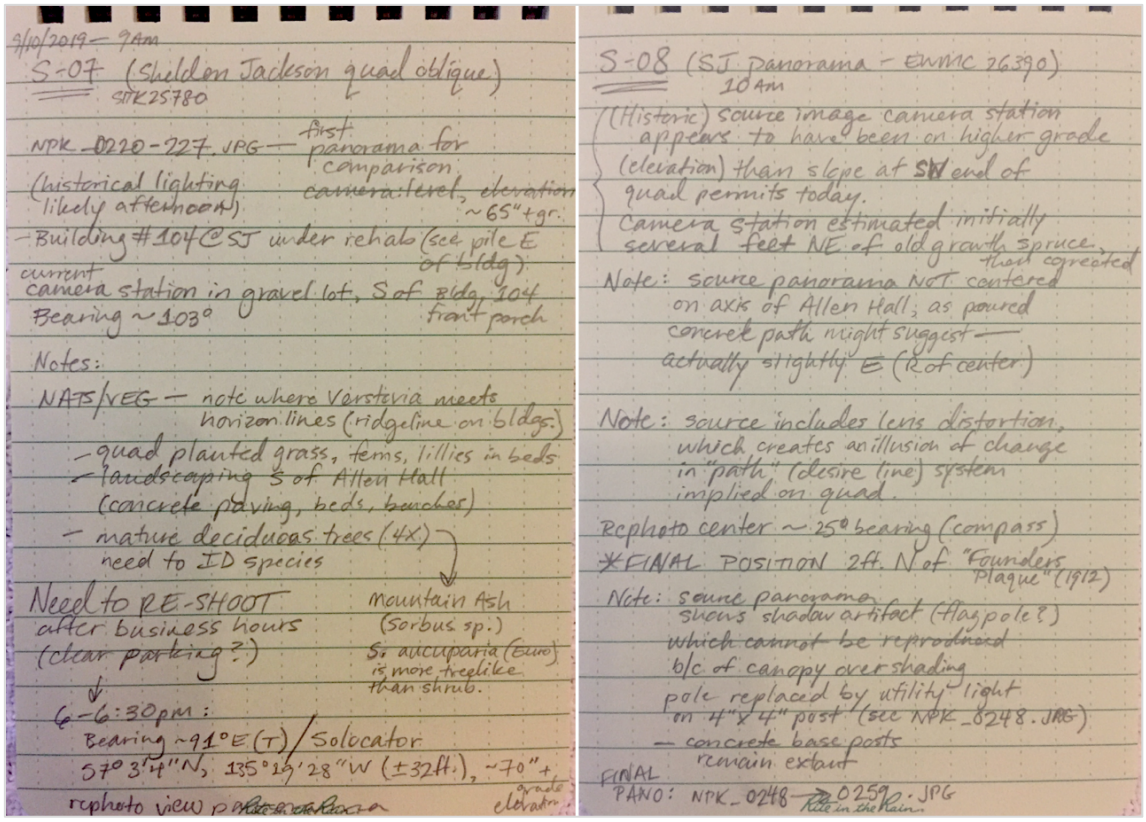


Figure 5-9. Sample field notes logged during work at SJS quadrangle (S-07, -08), reviewed daily.

The opportunity to return (copies of) selected EWMC views themselves to their geographic source marks a fascinating—and still largely unexplored—dimension of Merrill's legacy in Sitka. Although the majority of this research concerns a virtual, digital synthesis of views past and present, a set of high-quality transparencies proved a valuable reference resource during fieldwork. This choice originated as an informal, all-weather precaution; prior experience has shared inconvenient lessons about the vulnerability of paper-based materials to sites hosting rain, wind, salt, and dust. Letter-format (ANSI) transparency sheets accommodated source views at full scale: the original dry plate negatives conform to then-standard 8x10- or 4x5-in (203x254- or 102x127mm) dimensions. Not only could this format be easily stowed in protective sleeves for negligible weight, but it also ensured that the image size could accurately approximate the *in*

situ perspective and position of the original, large-format camera (Fig. 5-10).[162] A reformatted image—downscaled to fit a smaller sheet size, for example—would have skewed the accuracy of re-siting the historical image within its physical setting. Transparency sheets are useful as an efficient reference in real time, although cardstock versions additionally served as a medium for notes and backup reference.

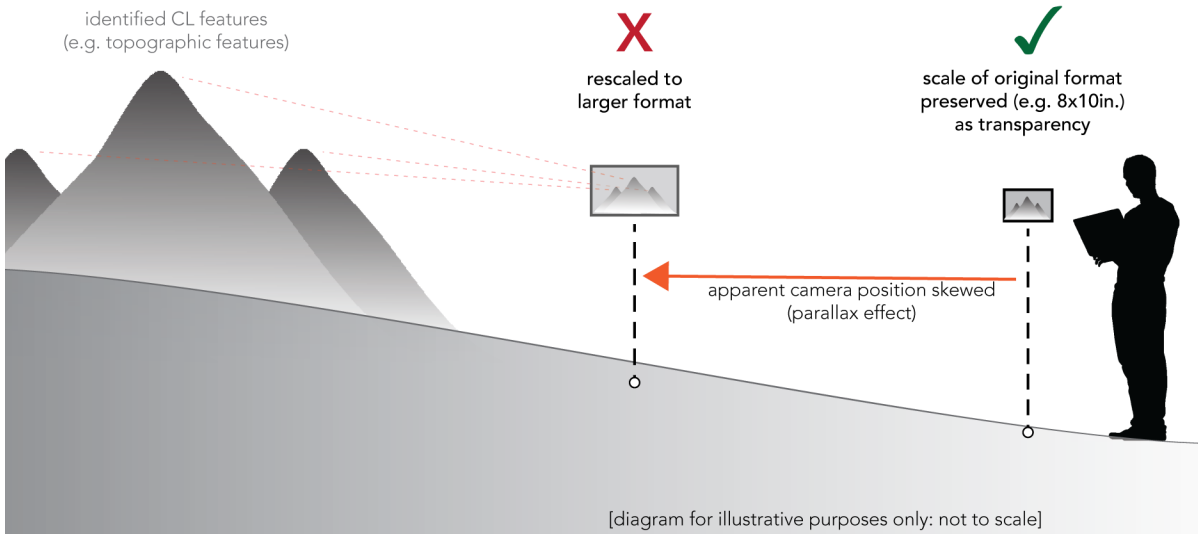


Figure 5-10. Use of full-scale transparency to simulate accurate view camera lens distance [depth] from features.

Among other locations, this approximation of peering through Merrill's own lens bore fruit near the foot of the Katlian Street harbor wall, looking toward the former Booth Fisheries storage from present-day Totem Square [S-12]. As a qualitative technique for checking and correcting position, the use of transparencies for comparison reinforced the usefulness of viewing landscape features in photographic context (Fig. 5-11). As an observational tool for assessing patterns of spatial organization, this approach brought several features into relief at

[162] The quality of transparency film itself was also considered: 4mil sheets of anti-static PET were ultimately selected, in order to handle the heavier ink loads necessary to render high resolutions from TIF images; this thickness also offers moderate stiffness for head-up viewing in the field. Results were printed to spec on commercial-grade equipment to avoid printing distortions which might alter the apparent location of background detail. Individual storage sleeves provided protection against staining due to inclement weather, humidity, and handling.

human scale, on a firsthand basis, rather than as map overlays. The experience was quietly exhilarating, likewise bringing to light detail and form that suggested the remnants of several landscape features not previously thought extant. What first appeared to be a complete reconfiguration of the viewshed through marina and hotel property development had, in fact, retained the alignment of the Booth warehouse pier; poured concrete walkways matched the alignment of historical social trails; scrutiny of harbor shoreline contours showed further similarities. The experience served to reaffirm rephotography's value as a process for discovery within the cultural landscape.

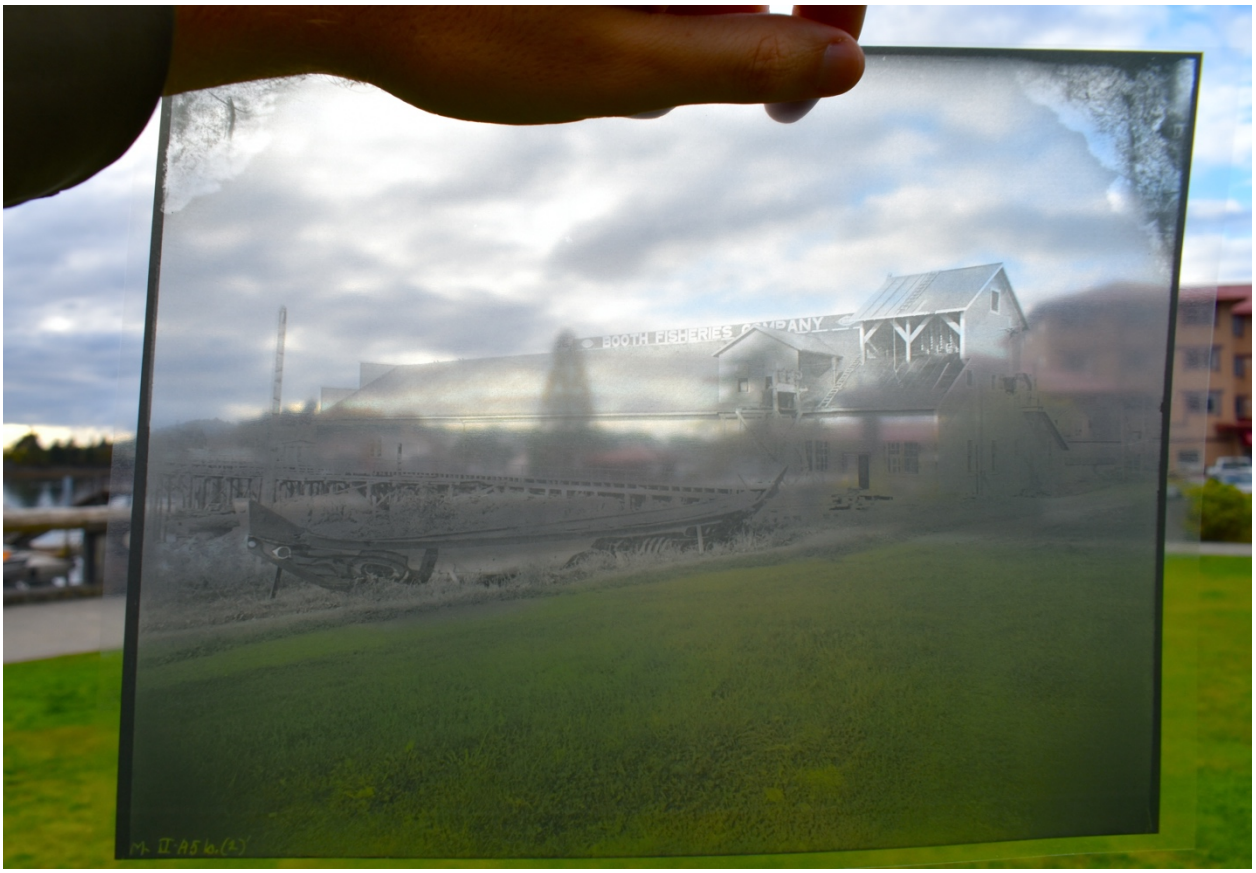


Figure 5-11. Informal snapshot with reference transparency for S-12, **view NW,** ***as seen from the final camera station in present-day Totem Square. The result is somewhat spectral.*** **(transparency printed from SITK 25574)**

iOS-based geolocation provided an efficient means of identifying and marking camera stations. As a means of comparing position with surrounding topography, as well as a navigation aid, the OfflineTopo application for iOS provided a scalable reference including elevation; suitable map regions were prepared each preceding night from available USGS Topo, USDA aerial (NAIP), and Gaia Topo layers. This navigation tool served to demarcate multiple potential Merrill camera locations for potential viewshed locations as waypoints (Fig. 5-12), which could be refined as needed and scrutinized according to surrounding topography. Research design initially explored the possibility of several standalone, hiking GPS or milspec/landnav devices as an alternative; a comparison of features, costs, and various margins of error ultimately made these inadvisable for use in this study.[163]

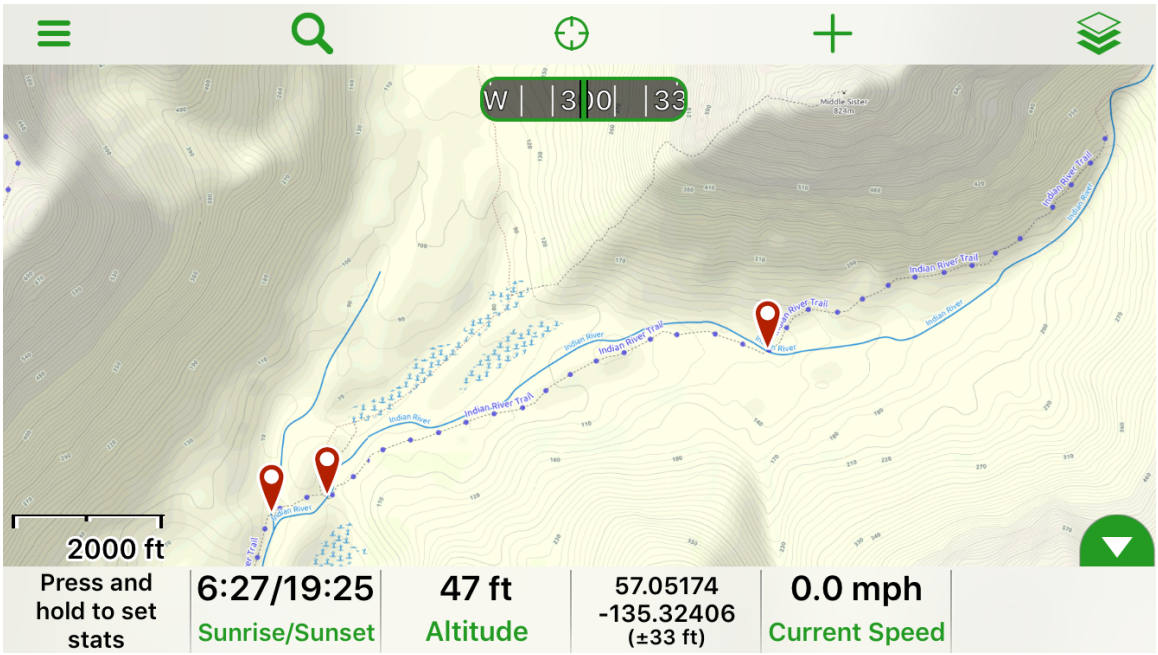


Figure 5-12. iOS screenshot displaying selected waypoints for site reconnaissance of S-04, placed relative to riparian channels, topography, land cover, solar azimuth, and related landscape features of the Upper Indian River. The final camera station was later confirmed near the westernmost point. (Offline Topo, 2019)

[163] "Milspec" refers to equipment designed and produced to meet demanding standardization requirements of the U.S. Department of Defense for field applications, rather than retail brands of the same name; "landnav" includes navigation equipment developed within this context.

Adopting Solocator [v2.6 / 2.7], a GPS-based photo mapping mobile application, comprised a key step in quickly linking ground-level photographic views with geospatial points and cardinal orientation for each rephotographic camera station. Developed in Australia by John Civijovski for surveying photographic viewsheds within the built environment, and previously tested in a variety of cultural landscape sites, this tool greatly assisted in the work of accurately recording and visualizing camera orientation as well as position, timestamps, and map context.[164] Even though GPS data from Merrill clearly does not exist, it is nonetheless a useful tool in analyzing Merrill's work in a 21st century context. This tool enabled logging a georeferenced, shorthand summary of rephotographic camera stations in place once identified (Figs. 5-13 and 5-14)—documenting a virtual snapshot, bearing, map, and elevation reading. Relative to concerns about the accuracy of non-governmental geolocation satellite positioning, Solocator benefits methodological transparency in recording a margin of error (+/-feet), which proved useful in conjunction with actual analog compass bearings. Limits on the precision of data logged with this tool appear to be primarily a function of iOS device connectivity with two satellite reference points (as opposed to three, as featured in milspec navigation devices). More consistent results were typical in areas featuring gentle slopes and low urban density, which suggests an apparent limit on use in especially rugged terrain.

[164] John Civijovski, email to author, October 20, 2019 see also "About Solocator," Civi Corp Pty Ltd, Sydney, Australia, https://solocator.com/#:~:text=About%20Solocator,elevation%20of%20a%20building%20face.

Figure 5-13. Solocator-stamped snapshot, as taken with a mobile device through DSLR viewfinder, from the S-01 camera station near SITK Totem Trail. Note: true-north bearings were converted to magnetic-north, for more direct comparison with baseplate compass readings taken manually. The following figure displays this location in its geospatial context.

Figure 5-14. Geospatial context for Solocator snapshot approximating S-01 camera station, linked with the previous figure. Close examination of application-generated points in field conditions indicates varied positioning accuracy, in this case on the order of a ~2m margin of error.

CHAPTER 6

DETAILED CASE STUDIES

6.1 Introduction

This chapter discusses detailed selected case studies within the Merrill Collection, drawn from the final set of rephotographic sources. Three source views were chosen to illustrate aspects of cultural landscape characteristic-guided analysis and rephotographic field techniques in more detail than is practical for the full source set within practical study constraints. (A complete set of rephotographic pairings for all selections is presented in Appendix B.) S-05 and S-10 provide a basis for this discussion; work with these photographs illustrates notable and varied aspects of engaging dynamic viewsheds, highlighting a majority assortment of cultural landscape feature types. In the context of Sitka's upland and coastal terrain, case study discussion also offers insights regarding challenges of reoccupying and utilizing viewsheds that have been significantly altered or occluded.

6.2 Sitka National Cemetery (S-05)

As a case study moving through analysis, reconnaissance, and fieldwork, S-05 engages several cultural landscape characteristic feature types—namely land use, topography, patterns of circulation, and small-scale features. Detailed analysis helps select for potential reference points within this subset, thereby narrowing an initial set of deductive cues among the available evidence. The descriptor accompanying this plate, "Cemetery Hill," is relatively self-evident at first glance (Fig. 6-1). Nonetheless, these words offer two diagnostic starting points to consider land use and enduring topography. The inference that a cemetery comprises a consistent use since its period is logical, particularly when linked with the consideration of natural site

topography. Consideration of the local geophysical context also suggests that the site is located well above the coastline, and therefore to be found somewhat inland. Sitka features a diverse range of pre-WWII mortuary sites, both public and private, sectarian and secular. Of those in use during Merrill's lifetime, however, few experienced the investment of resources and labor implicit in the redevelopment underway here.

Figure 6-1. Source photograph S-05, originally captioned "Cemetery Hill." (Courtesy of National Park Service, Sitka National Park; SITK 25603) [Note: image has been downscaled in resolution here; original reference image measures 1482dpi.]

Analysis may reveal the absence, rather than presence, of certain feature types. The viewframe is all but devoid of vegetation.[165] Site redevelopment is clearly underway; freshly graded soils (possibly added fill) dominate the foreground, a stark lack of cover in a lush maritime climate. The (temporary) effect of absent flora recorded at this moment is two-fold: first, interment markers (gravestones) are plainly visible in uniform rank and file, unobstructed by tree canopy, shrub layer growth, or memorial plantings. Second, of equal importance, the horizon terrain is also unobscured, including the steep shoulder of a forested upland landform. Based on slope and aspect this feature was later confirmed as Harbor Mountain, located to the northwest of Merrill's camera view.[166] Taken together, both observations offer diagnostic strands that help to reveal the photographer's orientation, and perhaps time of day.

Small scale features encompass a particularly important facet of analysis. More than 30 grave markers, in this case, offer an immediate source of detailed information as cultural landscape reference features (Fig. 6-2). Markers comprise an advantageous source of diagnostic information in terms of size, material composition, and form type, as well as inscription text and format. For the landscape historian, inscriptions present personal detail for each of the (8) naval, (8) marine, and (14) army graves depicted, to be cross-referenced against burial records, plot maps, and other supporting sources.[167] These, too, clarify the objects as part of a visual network

[165] For observers of landscape systems and processes, an interest in "charismatic macro-flora" is perhaps inevitable, if not satisfied here.

[166] [GPS reference to Harbor Mountain shoulder?]; research has not indicated whether this hill and its surroundings had been cleared of timber by Russian logging prior to 1867, as has been previously suggested.

[167] Despite an ongoing initiative to ensure accuracy in transcribing military records, Veterans Affairs reports an approximately 80% success rate; use of the tool here confirmed section and gravesite designations for selected burial records. Those corresponding with markers depicted at S-5 includes Sgt. Charles Shaefer, USMC, designate "Section H, Site 2;" Drummer D.W. Welter, USMC, "Section H, Site 6;" Martin Money, USN, "Section H, Site 10;" and Pvt. Henry A. Schmidt, USA, "Section L, Site 2." U.S. Department of Veterans Affairs, National Cemetery Administration, Nationwide Gravesite Locator, https://gravelocator.cem.va.gov/.

of discrete reference points and forms, which together comprise a spatially explicit resource for the rephotographer, who takes their relative distance and size into account among other image attributes. These features are markers, then, not only for the institutional memory of individual servicemen, but also as wayfinding points in reconstructing the view (camera station).

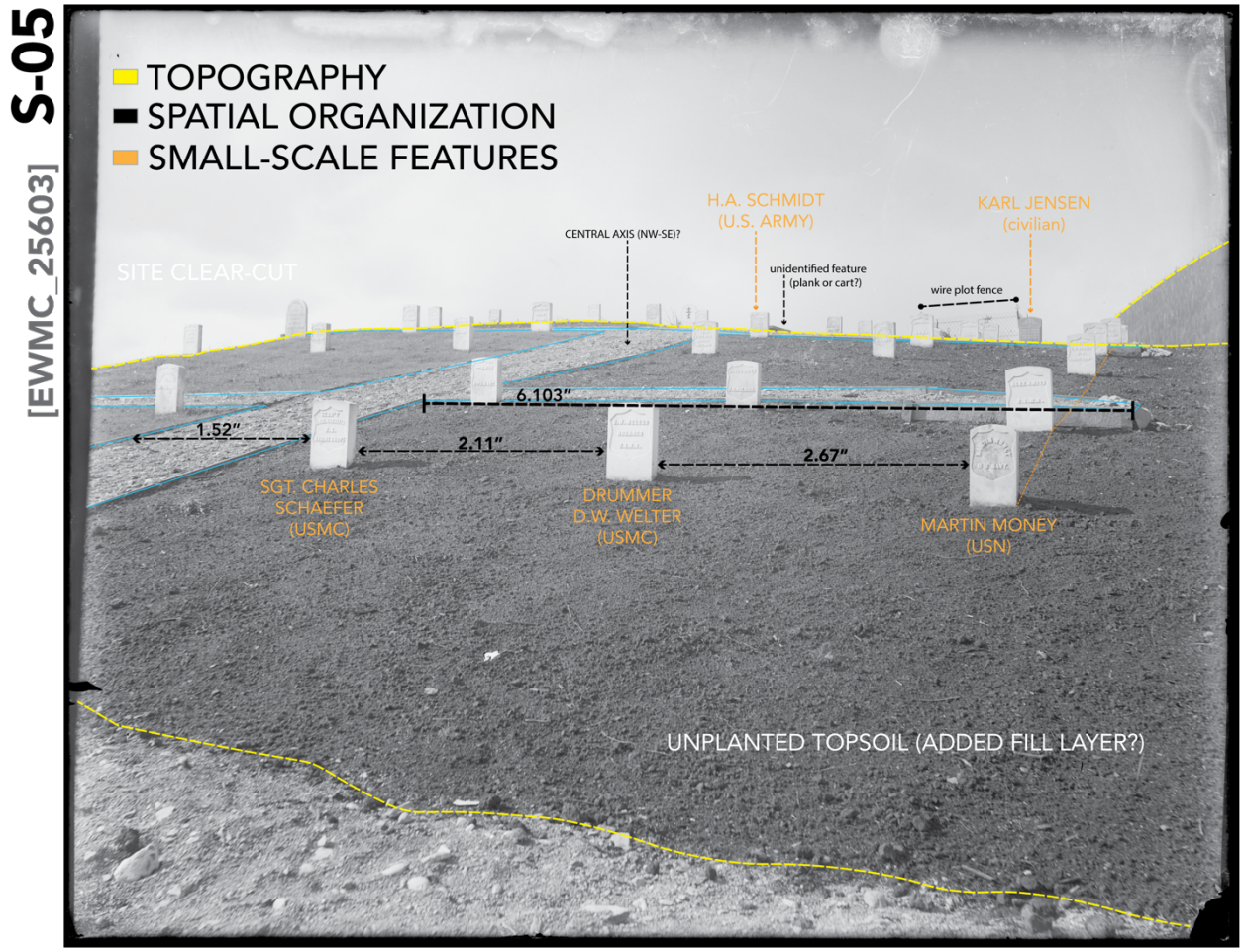


Figure 6-2. S-05 overlay, showing markup of selected small scale features analysis. Note: Markings in inches indicate distance measured derived from the source plate, rather than corresponding points within the site itself. (NPS SITK 25603; overlay by author)

Visual clarity, composition, and depth of field exemplified in Merrill's photographic technique underscores the usefulness of small-scale feature detail in its historical setting. This resolution supports a close scrutiny of inscriptions, which appear largely without patina or signs

of degradation (including crisp relief surfaces), while the angle and field of view are wide enough to reveal markers' placement as rational design elements in a system of uniform plots.[168] These details are consistent with design elements underpinning the early development of a hilltop military cemetery, reserved under the Benjamin Harrison administration in the same 1890 legislation that established the precursor to Sitka National Monument NPS-SITK.[169] The layout has been attributed to the administration of U.S. General Jefferson C. Davis, the controversial first commander of the army's Department of Alaska (1867-1870), although its actual development was given greater attention following the efforts of federal U.S. District Judge John H. Keatley by 1889, amid a series of military turmoil, political scandal, and agency handoffs prior to Merrill's arrival in Sitka.[170]

Taken at face value, the photograph's details portray features characterizing a system of spatial organization. Apparently newly established among the grave markers and paths, this configuration is consistent with the $1,200 "reconditioning" project for Sitka's post cemetery, underwritten by the Secretary of the Navy in 1921.[171] Compacted gravel paths, shown under construction, intersperse rows of grave markers in a cruciform layout (Fig. 6-3). These are distinct circulation features; moreover, their orthogonal shape and alignment further orient Merrill's camera station within the site's historic core area, finally designated as Sitka National Cemetery in 1924. The paths themselves are noteworthy as evidence of recent or in-progress

[168] The level of detail is striking: conifer grain pattern and saw kerf of dimensional lumber assembled for path border forms are legible several yards distant from the camera lens, for example, along with stippled tooling on marker tablets and a variety of surface roots in the soil.

[169] *National Register of Historic Places Nomination: Sitka National Cemetery, Sitka, Alaska*, NRHP ID 12000057, AHRS SIT-00023 (Washington, D.C.: NPS, 2012); see also NARA ID 75325766.

[170] Shannon Bontrager, *Death at the Edges of Empire: Fallen Soldiers, Cultural Memory, and the Making of an American Nation, 1863-1921* (Lincoln, NE: University of Nebraska Press, 2020).

[171] Roughly $18,000 in 2021.

construction work; still more valuable are the apparent points and angles at which they intersect, sans ground cover. Accounting for apparent distance, camera height, and hill slope, these features show the camera's lens nearly in line with path termini yet turned inward toward the central boulevard.

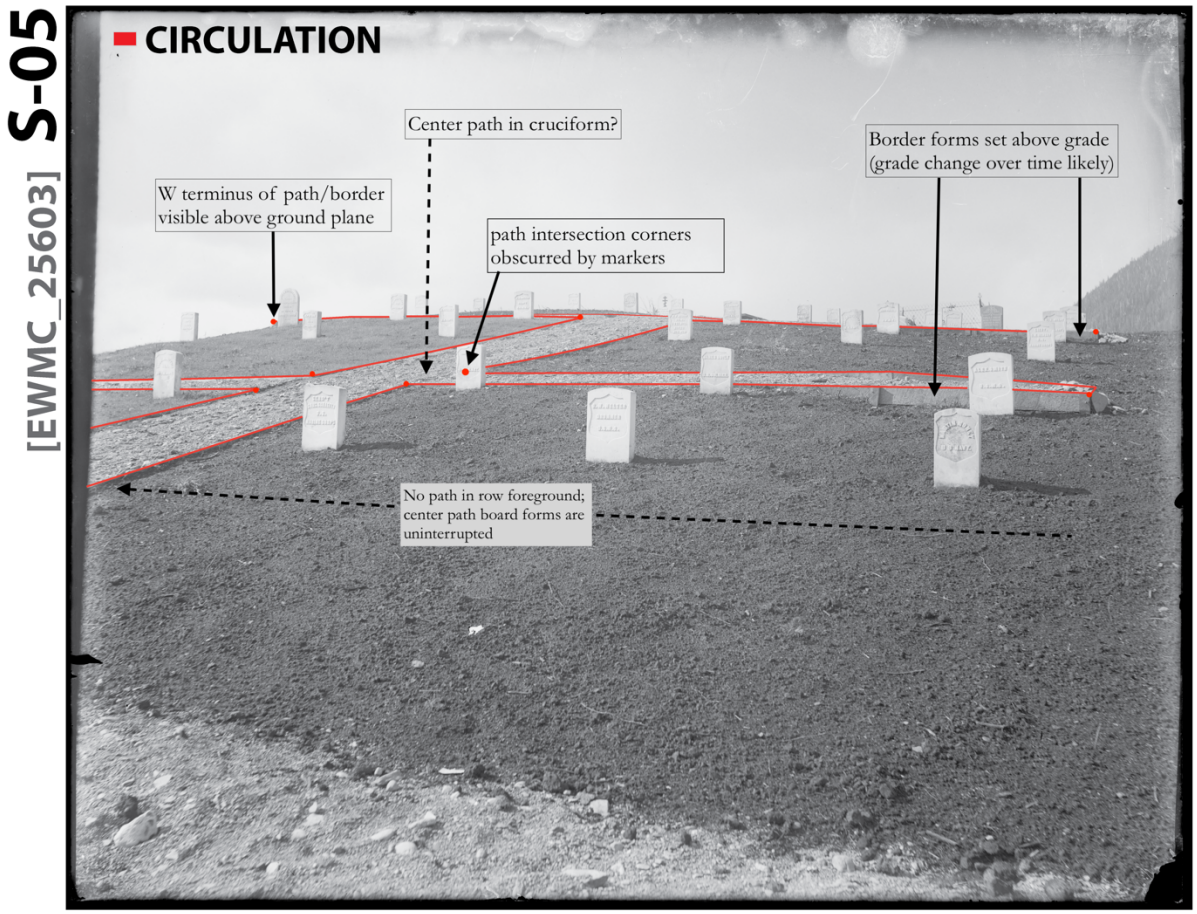


Figure 6-3. S-05 analytical overlay of selected circulation features, including notations. (NPS SITK 25603; overlay by author)

This deductive analysis prioritized reference features associated with natural systems and features, vegetation, spatial organization, patterns of circulation, and small-scale features. Cumulatively, observations drawn from these reference points suggest that Merrill chose to position his camera approximately 5–6ft beneath the crest of a hillside with a south- or southeast

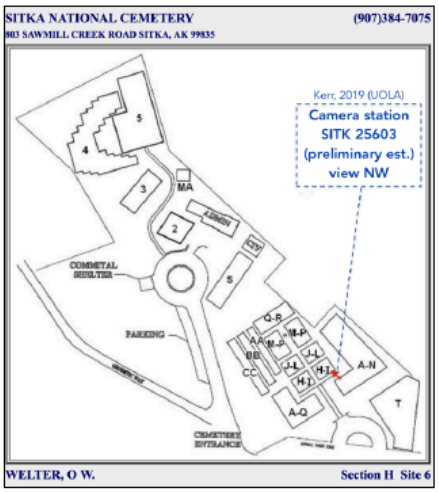
aspect (cross-referenced with 1-meter topographic contours); rotated his viewframe roughly west-northwest toward the central axis of a orthogonal path network, across the hill's slope; tilted its perspective close to level below horizon; and made his glass plate exposure during the late afternoon—approximately 4-4:30PM (1600-1630 LST[172]). Related notes were compiled and summarized for use onsite (Fig. 6-4; Appendix A).[173] These were beneficial both for shorthand, procedural reference in field conditions (Fig. 6-5), used after to support development of graphically aligned rephotographic pairs (Appendix B). Each helped in maintaining organizational continuity with the cultural landscape framework-based approach across viewshed sites.

Site reconnaissance confirmed the fundamental accuracy of the preceding image analysis. Reference points in the S-05 image, in fact, aligned well with many of extant cultural landscape features found in Sections H-J of Sitka National Cemetery (Fig. 6-6). This accelerated the process of locating and fine-tuning rephotographic camera position and orientation, within the immediate search area due north of the traffic/entry rotunda from Sawmill Creek Road. These features included basic path alignments, terminus locations and, in some cases, soil compaction where gravel forms had long since degraded (or were removed); basic hillside topography remained recognizable, although evidence of re-grading along the western edge of the hill was also apparent, along with fill added along the hill.

[172] Daylight Savings was not implemented for an Alaskan time zone until 1942. During Merrill's life, local time in Sitka was observed as Pacific Time (GMT-8:00).

[173] For additional detail, see Appendices A-B.

S-05 [SITK_25603] || Sitka National Cemetery, Sec.H/I view NW



CULTURAL LANDSCAPE CHARACTERISTIC-DERIVED REFERENCE NOTES (visual analysis)

X	Code	Reference point or attribute identified in analysis
	NATS	Lack of canopy- or shrub-layer native veg (NRHP suggests Russian clear-cut), topsoil unplanted
	SPAT	Military cemetery planning (**central axis**, orthogonal); marker spacing; intersection points
	USE	Burial
	TRAD	x
	CLUS	x
	CIRC	Gravel pathways (possibly redevelopment c. 1921/26); note forms
	TOPO	Hillside slope, Harbor Peak slope (right bkg.)
	VEG	Lack of ground cover (new topsoil?
	STRUC	Unknown structural feature (center bkg.), wire plot fence (R bkg.)
	VIEW	x
	CWF	x
	SSF	Specimen gravemarkers (current Section H-I, J-L // east edge of section)
	ARCHL	x

Notes: *foreground marker inscriptions, L-R*: Chas. Schaefer [USMC], D.W. Welter [USMC], Martin Money [USN]
midground marker inscriptions, L-R: "—Smith" [4th Art], James Doyle [soldier], Alex Smith [USMC]
third row marker insciptions, L-R: M.W. Berry [1 Texas], James Kingsbury [USN], Lt. G.R. Benson [USMC]

Note round-headed arch marker (e.g. Gothic style) civilian marker "James Kingsbury / seaman / 1882," background L.
Note granite marker Karl Jensen [civilian], Denmark native, background R. (near horizon).

Figure 6-4. Sample worksheet developed to guide field reconnaissance. Reviewing each framework component onsite (indicated as a shorthand code, shown at left) underlines the systematic, iterative nature of the process.

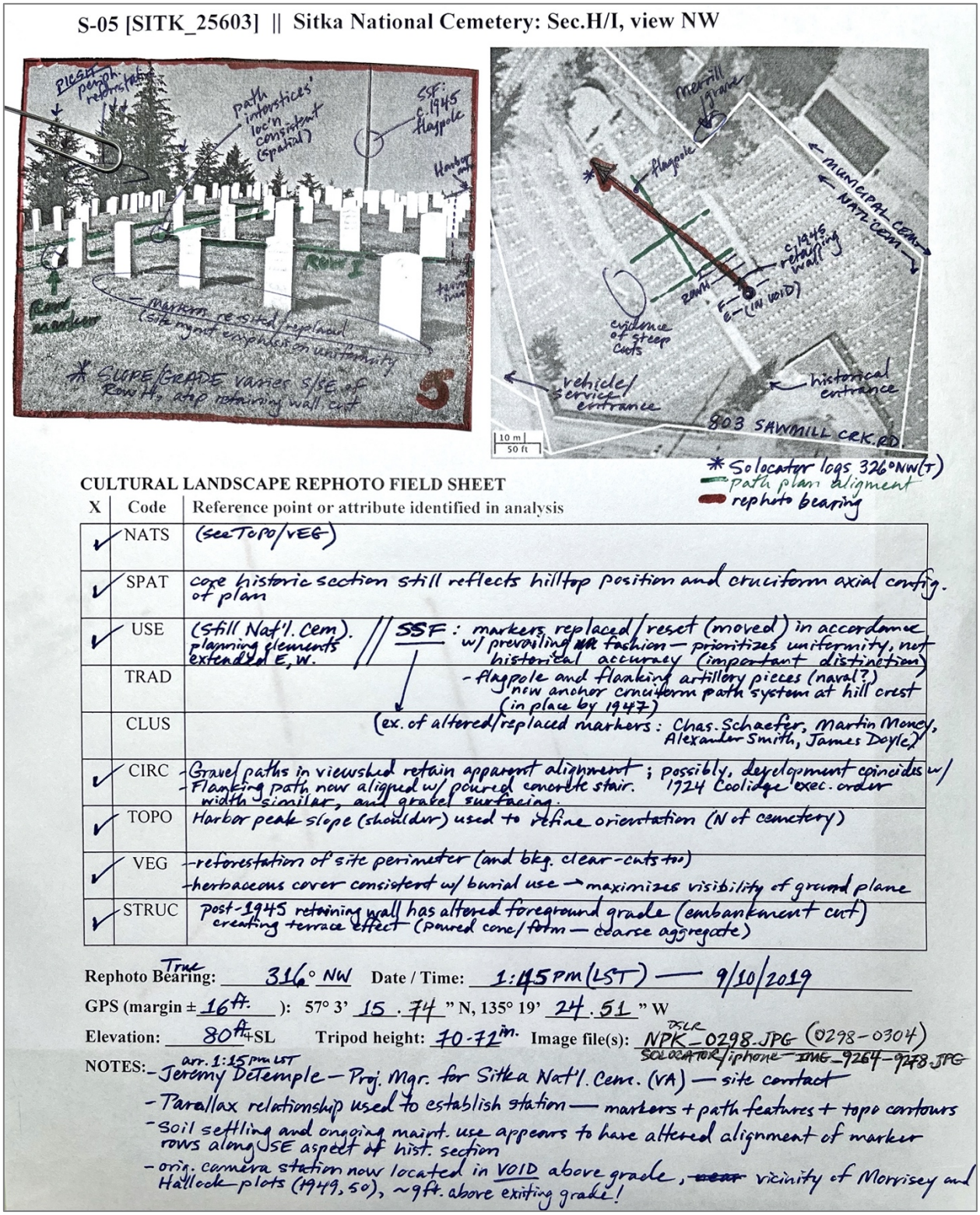


Figure 6-5. Sample worksheet completed as a part of field documentation for S-05 rephotography, following site reconnaissance. Notes were compiled to accompany development of rephotographic pairings (see Appendix B).

Figure 6-6. Rephotographic pairing for S-05, including overlays detailing selected reference points. Note changes in surface grade and row alignment, in addition to marker replacement (and re-siting), as well as land cover. (Solocator reading for camera station shows a bearing of 326°NW(T) for the lens center, position 57°3'15''N, 135°19'24"W.

Subtle differences noted among small-scale features included many of the grave markers themselves, replaced, relocated, or reset with later tablets, including those of Charles Schaefer, Martin Money, Alexander Smith, and James Doyle. Section rows now include granite slant-face markers placed along the center-axis path, denoting the corresponding Section letter for the adjacent row of graves, according to the historical burial pattern. Close comparison between views also reveals a change in the pattern of plot length and grave marker placement sequence, possibly the result of a change in grade, which lends a sense of rows stretching apart over time; by comparison, the paths remain comparatively static. Other features have been added, including the flagpole (partially visible in the rephotographic image), one of several postwar memorial additions completed by 1947 (Fig. 6-7). Unsurprisingly, turf is now established as the predominant ground cover, while mature conifer canopy has altered the background, enclosing historically open viewsheds and screening the hill from adjacent lots and land uses.

Figure 6-7. Axial view of historic core of Sitka National Cemetery,* view NW, *c.1947 (photographer unknown). Several cultural landscape features identified in the S-05 viewframe are partially visible here, as is evidence of replaced markers at lower right. Merrill's camera station is located several yards to the east, beyond the right edge of this view. (NARA ID 193797659)

"The landmark must stay put," Lowenthal argued, "if it is to mark the land."[174] But what if the historic marks themselves remain recognizable as discrete points, yet the ground beneath the viewer's own perspective is altered? A reconnaissance visit and rephotography revealed an unexpected modification in site topography and structure in the years after Merrill's photograph; this change was not apparent in mid-century topographic surveys. Close scrutiny of the same hill slope from ground level revealed a significant cut and concrete retaining wall—a substantial

[174] David Lowenthal, *The Past Is a Foreign Country* (Cambridge, UK: Cambridge University Press, 1985): 288.

change in ground plane and subsequent camera tripod elevation (Fig. 6-8).[175] In effect, the would-be historical camera station for S-05 now rests several feet in mid-air, prompting questions about the most effective means of reoccupying a camera station in extensively redeveloped or otherwise altered topography. Although a rough approximation of this position can serve for generalized reconnaissance and comparison, it also has the consequence of undermining reliable comparisons in the disposition of surface grading, path alignment, and monument features (i.e. row alignment and relative position). In effect exaggerating contrasts in slope and contour of along the hill's south and southeast aspect, this tack would also further complicate the task of clarifying evidence of change over time at the scale appropriate among small-scale features, as well as fixing it reliably in space.

Despite the absence of specific records, burials for the lower terrace suggest construction occurred circa 1947–1949, which may or may not coincide with the advent of NPS custodianship for the grounds in late 1948.[176] Rephotographic evidence suggests that the actual position of Merrill's view a quarter-century earlier now hovers in space over subsequent rows E–F—probably near the foot of the plots of John Walter Morrisey, USNR (1885-1950) and Pvt. David Otto Hallock, USMC (1886-1949), F-12—an estimated 9ft (2.7m) above existing grade. Two rephotographic techniques were employed to cope with this discovery: triangulating the position without a precise match in the location of small-scale features (i.e. disregarding exact gravestone spacing), and more closely comparing the spatial relationships between marker rows and path alignments, site topography, and upland topography. The result was a keener awareness of

[175] This cut apparently reshapes the south and west sides of the hill's topography and may have been shaped by grading associated with the addition of later sections along Geodetic Way.
[176] Joan M. Antonson and William S. Hanable, "Sitka National Monument, Middle Years," *Sitka National Historical Park: An Administrative History* (Anchorage, AK: NPS Alaska Region, 1987), 93.

several processes shaping this site over time, including soil compaction and settling, regrading, and intervening eras of renovation and maintenance decisions by multiple cemetery managers.

Figure 6-8. Post-WWII-era cut, retaining wall, and terrace below,* view SE.** ***The original camera station for S-05 was likely positioned on what is now a void. Calculated location of the actual point is approximated in box at upper left, while the tripod mount (visible at center-left) illustrates the would-be alignment of the view ahead of Merrill's lens.

Close comparisons made before and following rephotographic views inevitably raise questions about where reference points fail to match. Even after compensating for lens variables and fine-tuning to guarantee accuracy in camera position, height, rotation, and tilt, some points in the viewframe will not align exactly. This can be frustrating, but noting these inconsistencies helps to clarify the effect of cultural processes at work over time. Although labor-intensive, addressing these inconsistencies sustains active observation in the field—what landscape

photographer Anne Godfrey has called a "nearness of matching," a "not-quite-of-ness."[177] Cultural landscape-driven rephotography can be understood, then, as a scaffold for joining historical-photo analysis and experiential reconnaissance.

Environmental factors notwithstanding, realigned or replaced gravestones are one example: site stewards administer a configuration of disciplined rows, uniform spacing, and clean markers—revealing the managerial prioritization of visual continuity over historical accuracy. From this perspective, these elements sustain the persistence of a land use measured in terms of orderliness, not necessarily the preservation of features. The result is, perhaps, a conflict made more visible between the preservation of what geographer Donald Meinig referred to as "landscape as Ideology" over that "of History."[178] Acknowledging the principles of orderliness implicit in military cemetery management urges us, in this instance, to recognize how the process of shaping landscape over time produces a gradually shifting cast of forms, materials, and even locations. These are products of a cultural landscape process centered on asserting the visual continuity of uniform commemoration, not on the *in situ* preservation of historically precise conditions.[179]

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[177] Anne Godfrey, *Active Landscape Photography: Theoretical Groundwork for Landscape Architecture* (New York: Routledge, 2020), 162.

[178] D.W. Meinig, "The Beholding Eye: Ten Versions of the Same Scene," in *The Interpretation of Ordinary Landscapes* (Oxford, UK: Oxford University Press, 1979), 42-43. NPS policy urges against the replacement of historic, government-furnished markers in national cemeteries; see Jonathan B. Jarvis, *Director's Order #61: National Cemetery Operations*, U.S. Department of the Interior, National Park Service, July 2010, https://www.nps.gov/policy/DOrders/DO_61.pdf; NPS, *Reference Manual 61: National Cemetery Operations*, RM-61 (2011), https://www.nps.gov/policy/DOrders/RM-61.pdf.

[179] A wealth of literature addresses the preservation of historic public cemeteries, including military sites. Selected examples include technical guidance from the National Center for Preservation Training and Technology; Frank Matero and Judy Peters, "Survey Methodology for the Preservation of Historic Burial Grounds and Cemeteries," *APT Bulletin* 34, nos. 2/3 (2003): 37-45; Mary F. Striegel et al, Preservation Brief 48: Preserving Grave Markers in Historic Cemeteries, Technical Preservation Services, National Park Service, September 2016; Ingvall Maxwell, Ratish Nanda, and Dennis Urquhart, *Guide for Practitioners 2: Conservation of Historic Graveyards* (Edinburgh, UK: Historic Scotland, 2001).

If the cultural landscape can be understood as a palimpsest of historical layers, this case study demonstrates the variety of telltale details involved in distinguishing among them. The cultural landscape framework anchors a systematic approach for observation and documentation of land features within the viewframe, heightened in comparisons of detail and precision through the use of rephotography. Merrill's source view offers a sound baseline to sustain comparisons made across time and yields a wealth of detail when aligned with enough scrutiny to recognize and ponder inconsistencies. With sufficient preparation and analysis, this synergy demonstrates a consistent means of landscape inquiry.

6.3 Russian Orthodox Cemetery (S-10)

Changes to land cover pose a distinct challenge when comparing the location and features depicted in historical photographs with existing conditions a century later. With only modest seasonal variation in temperature and significant precipitation, the cool maritime climate experienced in Sitka fosters a range of vegetation growth at the lower elevations, particularly in the case of under-canopy composition in local coastal rainforest plant communities. Plant species like the native Devil's Club (*Oplopanax horridus*), characterized by its broad leaf structure and massed up to 5 ft (1.5m) in height, are overt indicators of changing composition, in some cases marking a dramatic contrast between the open spaces of Merrill's time and limited present-day visibility.[180]

The apparent density of this type of growth has a strong screening effect, overall, on the visibility depth (distance) and detail available for comparison to Merrill views. This is

[180] National Resource Conservation Service Plant Data Team, "OPHO Plant Profile," PLANTS Database, U.S. Department of Agriculture (accessed January 3, 2020), PDF https://plants.usda.gov/core/profile?symbol=OPHO.

exemplified, in particular, within the Russian Orthodox Cemetery [S-10 and S-09].[181] This was once the location of an open view between Marine and Erler Streets—a nearly 135-degree, uninterrupted hilltop vista between the present-day Blockhouse location and Halibut Point Road alignment.[182] Although situated among clear-cuts made prior to 1929, the ground plane within the cemetery is now all but invisible from the air; canopy cover is nearly total in current satellite imagery (Fig. 6-9), contrasted with digital elevation modelling (DEM) imagery (Fig. 6-10).

Figure 6-9. Aerial view of Russian Orthodox Cemetery and surroundings, in which prospective camera stations for S-09 and S-10 were identified (see following figure. Note dense canopy above and flanking hillsides. (Image: Google Earth/Landsat, 2019)

[181] Existing conditions within the S-09 viewshed, likewise, show similar effects, as well as relative proximity to S-10.

[182] Due to the constraints of slope and adjoining land parcels, pedestrian access is located near the northern terminus of Observatory Street to the south, and near the intersection of Spruce and Erler Streets.

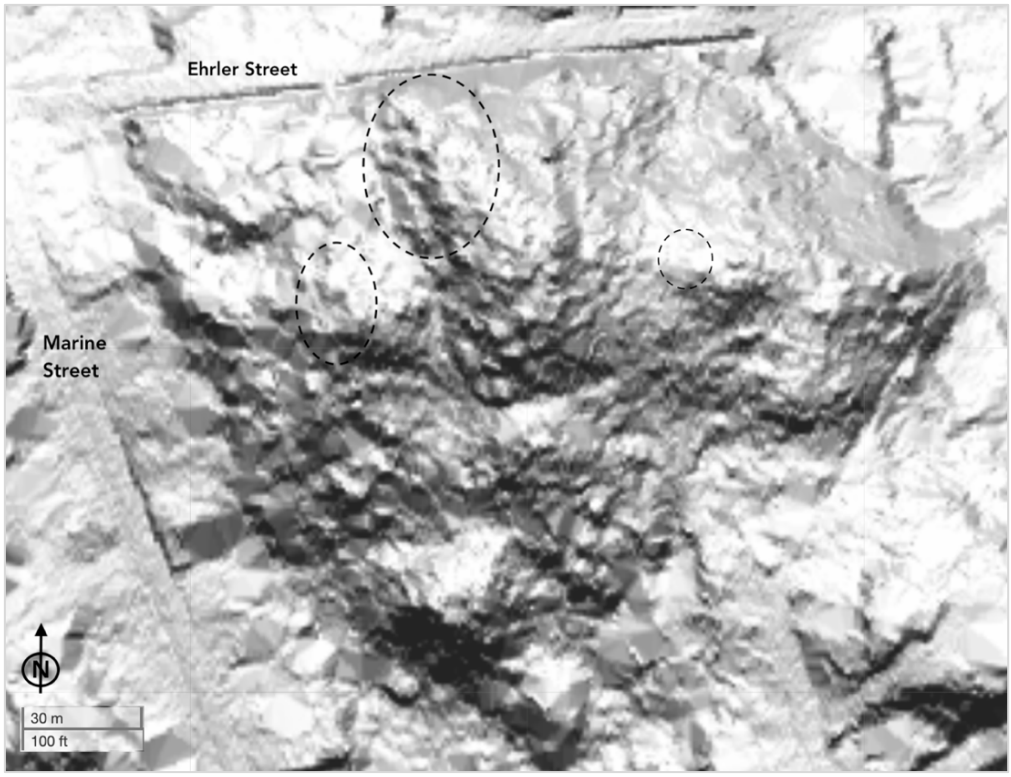

Figure 6-10. DEM overlay of Russian Orthodox Cemetery parcel. Prospective camera station areas are denoted within dashed lines. (Alaska Division of Geological and Geophysical Surveys/Elevation Portal, Sitka 5m DEM, 2014-2018; annotations by author)

Reference feature locations identified in mid- and background, including small-scale features (monuments), building & structures, cluster features (plots), and island features (natural topography), are now virtually invisible because of understory growth or canopy growth, which has reforested the western hillside during the past century. Repeated incidents of vandalism further complicate scrutiny of the same historical views at ground level, obscuring the historical arrangement of markers, structures, and interrelated small-scale features.[183] Although the location of a photograph may serve to fix a lasting point in space, its visual connection to the surrounding landscape remains another matter entirely.

[183] Emily Kwong, "Repeated vandalism is historic Sitka cemetery," KCAW Raven Radio News, October 26, 2015. https://www.kcaw.org/2015/10/26/repeated-vandalism-in-historic-sitka-cemetery.

Canopy structure itself is worth acknowledging as an influence on visibility and comparison. Along with the reforested Orthodox Cemetery site, this was illustrated in the case of several source images [S-01, S-02, S-03] located in near popular hiking trails on Indian River Peninsula, which link the historic 1804 Kiks.ádi fort site (Shís'gi Noow) with the surrounding Sitka National Historical Park. A dense spruce and hemlock canopy figures prominently here, characterizing the path corridor known colloquially as "Lovers' Lane" during the early 20th century. The moniker suggests a generous degree of privacy, despite the trail's situation mere yards from the peninsula's western shoreline. The evergreen is resilient and well suited to this context; the life history of Sitka spruce indicates its tendency to mature without lower limbs, thus maintaining an open understory.

Preliminary analysis suggested that the S-10 camera station is located within the historic Russian Orthodox Cemetery (Fig. 6-11), located on an elevated hillside approximately 600ft (183m) south of Swan Lake. Selected landscape features—including masonry grave markers, at least one Byzantine cross, plot fencing, and a post-and-rail fence—supported the accuracy of the photograph's accompanying collections label text. With the aid of USGS 7.5 minute quadrangles, the image mid- and background were next considered and oriented. In particular, the coastal island formations Japonski, Battery, Apple, Kasiana, and Middle (partial), flanked by Kruzof, including the distinctive Edgecumbe volcanic peak.[184] Comparison of geographic position and shape effectively allowed these landforms to anchor a rough triangulation of the camera station position; initial estimates suggested a distance to the Edgecumbe south rim and

[184] USGS, Sitka A-5/6 SE Quadrangles, Sitka and Borough, 1:25,000 7.5-minute Series, 2017. Use of topoView, a software interface developed through the National Geologic Map Database project (NGMDB), USGS National Geospatial Program (NGP), enabled comparison with varied base imagery.

north point of Japonski Island of approximately 1.25mi and 15.5mi, respectively.[185] This technique also helps to interpret elements relating to image composition, suggesting that Merrill may have positioned his lens using a slight downward tilt. These characteristics and features were noted for possible use in the field.

Figure 6-11. Source view for S-10. (Courtesy of National Park Service, Sitka National Historical Park, SITK 26289)

Considering Natural Systems & Features, Topography, and Land Use within the source image also drew attention to a possible clear-cut in front of the camera, visible among stumps, young conifers, and possible disturbed soils within the image's midground right area. This lack of canopy cover also reveals a possible boundary between land uses, or perhaps ownership,

[185] Survey accuracy notwithstanding, the use of reference points over this distance places a premium on clear visibility conditions, a given camera's depth of field, and the quality of a photographer's optometric care.

highlighting a contrast between a neglected cemetery on one side of a small rail fence and more recently cleared terrain beyond. Furthermore, the visible slope in the foreground is not uniform and features dense ground and shrub layer growth. A variety of young conifers, primarily spruce, are also visible. These do not appear to reflect plantings; rather, their apparent distribution and size suggests the likelihood of these trees colonizing a cemetery already apparent in its neglect during Merrill's lifetime.

Conditions onsite today reflect significant reforestation of the foreground, in contrast with much of the surrounding residential area at lower elevation. While not quantified (i.e. densiometry), canopy and understory growth were observed to be sufficiently dense across the hillside as to prohibit any direct visual identification of landscape features beyond the immediate foreground. Reference points beyond the cemetery interior were not visible from the camera station.[186] In other words, although the triangular parcel has largely been absorbed into a relatively developed residential and commercial area, the cemetery's status as sacred ground is visibly contrasted, surrounded, and enclosed by its land cover.

The cultural context of Russian Orthodox mortuary practice is an essential factor in approaching this site. Religious consecration notwithstanding, burial plots have not typically been organized according to strict linear rows or orthogonal sequences. More recent interments have been placed among and across previous burial areas—a practice that follows the function of Orthodox eschatology, limited space, ambiguous spatial record-keeping, and the practicalities of

[186] "Basic quality" resolution in ground-level photographic images (i.e. 1600 x 1200px) has been shown to serve as a sufficient vehicle for densiometric comparison; Sylvia R. Englund, Joseph J. O'Brien, and David B. Clark, "Evaluation of digital and film hemispherical photography and spherical densiometry for measuring forest light environments," *Canadian Journal of Forestry Research* 30 (2000), 1995-2005. By comparison, fieldwork adopted a standard of 4000 x 6000.

burial on a steep coastal hilltop.[187] Over time, legibility of small-scale features (and their spatial organization) has been blurred by the markers and coping materials' intrinsic susceptibility to biological growth and exposure to Baranof Island's wet, warm climate. Small-dimensioned wood fencing, constructed prior to 1929, is one example of a particularly vulnerable feature type in these conditions. A variety of later grave markers, fabricated using reinforced concrete, have also degraded with exposure and erosion. An additional likely factor in feature visibility relates to the pressures caused by cemetery maintenance and labor costs, as design history scholars David Schuyler and Patricia O'Donnell point out, which have increased substantially over the past century.[188]

Several additional considerations distinguished the investigation of the Russian Orthodox Cemetery (S-10). Initial field reconnaissance confirmed that none of the more distant reference points were visible from the prospective camera station due to dense woodland canopy and hillside understory. However, because the same reference points were derived from comparing known, static landforms (and topographic characteristics) with those visible in the source image to simulate a compass bearing, a likely camera station could be reoccupied using similar principles in the field. As a result, capturing a largely "blind" rephotograph remains possible (Fig. 6-12), although certainly not ideal. This point may be further refined in the event of future

[187]Sannie Kenton Osborn, "Death in the Daily Life of Ross Island Colony: Mortuary Behavior in Frontier Russian America," PhD Dissertation, University of Wisconsin-Madison, 1997, 34. While Osborn notes that mapping efforts have previously taken place, the results and their whereabouts remain unknown; See Osborn, 304. Sitka Historic Resources Commission has since designated the site as SIT-00054; See also Neher, Ricketts, and Orbison, *Kettleson Memorial Library Cemetery Project* (Sitka: Kettleson Memorial Library, City and Borough of Sitka, 2014).

[188] David Schuyler and Patricia M. O'Donnell, "The History and Preservation of Urban Parks and Cemeteries," in *Preserving Cultural Landscapes in America,* Alanen and Melnick, eds. (Baltimore, MD: Johns Hopkins University Press, 2000), 78.

landscape treatment measures through the appropriate use of viewshed management techniques such as pruning.

Figure 6-12. Rephotographic pairing for S-10, including overlays detailing selected reference points. Fence alignment is visible at lower right, roughly parallel to Ehrler Street today. Lens center bears approximately 294°W-NW(T), logged 57° 3' 11.0118", 135° 20' 17.289"W. Note: the following figure shows the same views, superimposed. (SITK 26289)

Of the features identified in analysis as reference points, only the location and alignment of a gateway fence near the cemetery's north boundary were evident from the triangulated camera station. Close examination suggests that the fence components themselves have been replaced, possibly multiple times, although its post position and linear alignment remain consistent with its predecessor(s). From this elevated knoll, the fence alignment provided a cue to orient the viewframe with respect to the present-day hill aspect, slope, and additional terrain to the north. By moving between the prospective viewpoint and several positions farther north and downhill (which offered clearer west-northwest visibility of Japonski Island's northern edge), the final camera station could be more reliably adjusted for elevation and tilt.[189] From a level (plumb) tripod position and bearing of approximately 294° (west-northwest), for instance, the

[189] Bearings taken in the field illustrated some discrepancy from this position; iOS-based GPS readings indicated 295°(M), while manual bearings reflected 293°W-NW.

camera orientation required a 5° downward tilt. A similar level of precision was attempted using triangulation for S-09, nearby within the same cemetery, but was only roughly possible.

Figure 6-13. Experimental rephotographic overlay for S-10 study (see previous figure). This superimposition necessitates modifications to opacity of the 2019 view, including selected gradients and tiling position. The resulting viewframe facilitates an overall sense of contrast in depth, revealing something of a spatial palimpsest, yet also restricts direct comparisons to selected areas or zones within the viewframe. Consequently, an overlay format may be considered an appropriate choice for some graphic applications, while simply obfuscating in others, where full-frame formats remain indispensable. (SITK 26289)

Ultimately, this case study illustrates the risk implicit in attempting to rephotograph views whose foreground is dominated by large-scale natural systems and features. At a macro-scale, the analytical work of locating S-10 benefitted from Merrill's use of an upland, elevated vantage point, with clear conditions offering a visibility of at least 15.5mi (25.1km) west-northwest toward Kruzof Island. The wealth of geophysical features in the *background* of the source view, including Edgecumbe and several other points, comprise a neat configuration among distant detail and form. After a century of reforestation, when viewed horizontally at

ground-level, these are entirely screened as viable reference points in mid- and foreground (Figs. 6-13 and 6-14). None of the previously identified small-scale features or structures can be identified within the mid- or foreground, with a single exception of the aforementioned boundary fence. The persistence of long-term change remains therefore apparent, emphasizing the ongoing influence of landscape dynamics in shaping viewsheds, even from seemingly commanding vantage points.

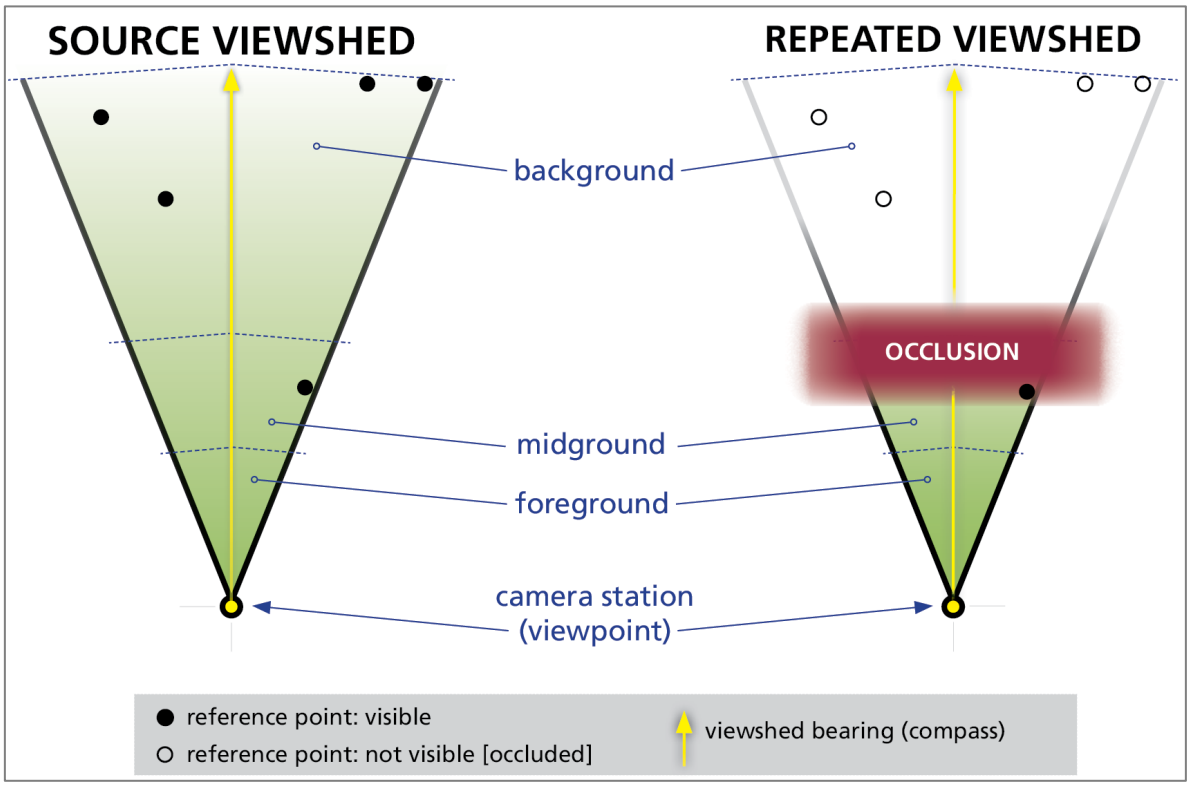

Figure 6-14. Conceptual diagram illustration comparison of viewsheds with occluded reference features in depth.

The result of rephotographic fieldwork here reinforces a key lesson in attempting to reoccupy a long dormant camera station. The length of time elapsed between the views poses an important factor. Designing a rephotographic survey should take into consideration a basic corollary that, as the interval increases from the date of the previous view, so too does the variety

and complexity of possible variables influencing visibility (or even recognizability) of the same viewpoint. Amid the current trajectory of canopy and understory density itself, an array of factors has expanded this challenge for rephotography of S-10. Basic examples range from the cumulative effects of burial displacement and decomposition (settling) amid a deep network of stumps, roots, destabilized plots, and numerous social trails (i.e. informal human trails) on the surrounding terrain, to sustained impacts of camping, vandalism, and other illegal activity.[190] In this way, intervals in the passage of time should not be understood merely as a linear sequence of discrete impacts, but perhaps instead as a vector for examining numerous changes both cultural and environmental. With time grows the complexity of possible change.

The wealth of reference features studied in the background of S-10, set in contrast with today's heavily occluded foreground, is also a source of consideration for how cultural landscape practitioners might variously assemble (i.e. view) rephotographic pairs for continued use. As the previous figure illustrates, alternatives to the side-by-side pairing format originally adopted for the investigation can be both instructive and advantageous—in this case a superimposition of views which highlight depth in comparing (or contrasting) viewshed areas where overgrowth or other forms of occlusion have otherwise collapsed the extent of visibility during the interim.[191] Superimposition also offers the possibility of merging, rather than separating rephotographic pairs within the same graphic plane, although this tack quickly becomes fraught in its sacrifice of clear graphic demarcations between historical intervals in exchange for apparent graphic polish. Tradeoffs are inherent in selecting among alternatives, especially in the digital realm: design of rephotographic superimposition requires a range of choices regarding image opacity, gradient,

[190] Much to the chagrin of its caretakers, it is clear that many, more secretive site users value its visual isolation.

[191] Experimental superimpositions were developed using Adobe InDesign; no images were subjected to alterations in Photoshop.

and extent, all of which may elevate visibility or contrast in some features at the expense of others. This type of scenario is instructive as a reminder to weigh the implications of graphic approaches in assembling, as well as recording rephotographic views, all of which involve some measure of analytic or curatorial compromise.

Taking the case study as an exercise in appreciating landscape as process encourages us to look beyond feature visibility. A significant portion of the land cover screening the view grows within the cemetery itself, yet even a highly screened rephotographic view retains value as contemporary photographic evidence. To decisionmakers or stakeholders concerned with open views or recognizable landmarks, this type of hyper-contrast might signal a likewise heightened need for treatment (see also S-09). This contrast presents perhaps a much stronger statement than might subtle, incremental changes among the built environment. In acknowledging the cumulative impacts of landscape change, the comparison draws from the tacit understanding that the viewshed has collapsed from miles to scant yards, and the view borders on unintelligibility. Outside a rephotographic setting, similar images may appear less valuable for precise guidance in the types of active intervention required to manage trajectories of change. With a reidentified camera station, however, they also embody an invitation, in turn, to continue the rephotographic sequence in the future—doubling down on the possibility of before and after treatment.

CHAPTER 7

FINDINGS, LIMITATIONS, AND RECOMMENDATIONS

7.1 Discussion of Findings

Previous investigation, including the application of methods demonstrated in the previous chapter, has confirmed that rephotographic techniques can reconnect archival source material (associated with specific cultural landscape features) to their historical viewshed in its present-day physical setting. This reconnection lies in the configuration of multiple, discrete reference points which visibly link a historical source to its present site, identified through the deductive use of cultural landscape framework characteristics. Reference points may also be distilled from a wide range of cultural landscape features depicted in selected source images. These comprise a unique set of visual cues for identifying or reestablishing view location and orientation.

During the analytical phase of investigation, the direct support of spatial reference tools makes reliable analysis feasible. In many settings, source images alone provide an insufficient basis for accurately locating and orienting original camera stations. This is particularly so when a researcher lacks firsthand familiarity with local physical and historical geography—which was the case with the Sitka project area. As a result, use of supporting sources should depict geographic and topographic space sufficient in scale to effectively situate potential rephotographic viewsheds and reference features in full depth, as opposed to the viewpoint alone. Investigation of camera stations in the field indicates that this scale will vary, sometimes substantially, among source images. Views that are oriented toward coastal features from elevated vantage points, for instance, tend to present deep fields of view, perhaps encompassing more than a mile in length. Conversely, source images dominated by dense land cover, often

linked with viewsheds found inland and at higher elevation, present a comparatively shallow depth of field for identifying reference points.

In a randomized source selection process, as employed at Sitka, the overall range of variation is a function of regional landscape character, authorial choice, and the selected source subset size. Variation is further shaped by factors ranging among photographic depth of field—including climatic and seasonal influences—to the physical size (volume) and proximity of reference features identified. This finding suggests that a robust approach for rephotographic location and orientation must be designed with specific attention to a spatially aware set of techniques, supported by detailed geographic and topographic reference tools. Situating a view in this respect substantiates a basic reframing of the historical site photograph as a dynamic landscape setting, rather than a static representation of the past. Changes affecting field sites comprise many variables, both environmental and cultural: plant succession, for instance, or surface regrading for road infrastructure updates. The practitioner benefits from more closely utilizing photographic sources in tandem with spatially explicit media, such as topographic surveys and localized geospatial data.

Considered through the language of photographic composition, this concept suggests that where and how selected reference features are *grounded* matters immensely in identifying and assessing viable source imagery. Deriving reference features from a cultural landscape framework-guided survey of geophysical landmarks, for instance, suggests that composition choices play an intrinsic role in including, excluding, or even skewing features within viewshed framing. A similar dynamic is exemplified in a study of Timothy O'Sullivan's 1869 composition choices in depicting the Tertiary Conglomerates in Utah's Weber Valley, undertaken by

landscape photography scholar Rick Dingus.[192] In investigating Merrill's work at Sitka, large-scale landforms are typically figured as distant, background elements, rather than foregrounded as subjects (dwarfing or occluding any number of smaller features along the same axis). In the context of this investigation, such a configuration has proven advantageous for triangulating among a variety of reference features across zones in longer viewsheds, as seen in the case of views extending well into Sitka Sound. Similarly, structural elements in distinctive buildings or even small-scale features can make for poor reference features in a distant background zone, as the likelihood of detailed comparisons diminishes over physical distance and are perhaps compounded over time. Size does indeed matter.

From a cultural landscape standpoint, such composition choices on the part of the original photographer also serve to influence a rephotographer's visual awareness of the physical and social context surrounding the viewframe. These choices can also encapsulate subjective motivations, aesthetic tastes, and perhaps technical training on the part of the photographer. A specific analysis of creator motivation is not essential to the applied process of reconstructing the camera station, as reflected in the scope of this study. It is, however, a useful source of inference in confronting site photographs as distinct sources of primary historical evidence, or "nonasthetic [sic] visual record," in the broader forum of historical landscape analysis.[193] Landscape

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[192] This landscape feature was historically dubbed "Witches Rocks," included in the Clarence King-led U.S. Army Corps of Engineers survey of the 40th Parallel; see Rick Dingus, *The Photographic Artifacts of Timothy O'Sullivan* (Albuquerque, NM: University of Arizona Press, 1982), 27-28; Dingus, *Shifting Views and Changing Places,* ed. Peter S. Briggs (Norman, OK: University of Oklahoma Press, 2016). See also Klett et al, *Second* View, 1984; Mindy N. Besaw, "Reframing the American West: Contemporary Artists Engage History" (Diss, University of Kansas, 2015), 42, KU ScholarWorks.

[193] Robert Bishop McLaughlin, "The Evaluation of Historical Photographs: Considerations for Visual Resources Curators and Librarians in Museums and Archives," *Art Documentation* 8, no. 2 (Summer 1989): 55-60. Instructive examples of analytical issues in prewar photographs include discussion in Martha Sandweiss, *Print the Legend: Photography and the American West* (New Haven, CT: Yale University Press, 2004), and George Barnum, "Reading Historical Photographs: What Can We See, What Can We Learn?" *GPO History Talk,* April 17, 2013. Presentation for U.S. Government Printing Office.

professionals should consider *why* a given source view has merit in understanding a site over time, rather than simply accepting it on the authority of its existence.

Centrally, this investigation has confirmed the basic research hypothesis—that the cultural landscape framework can (1) be adapted from its traditional role as an organizational tool for assessing tangible site elements, and (2) be implemented to systematize rephotographic applications in historic landscapes. In particular, adaptation shows merit as a framework for guiding the selection and analysis of historical source photographs, as well as a systematic series of comparisons and calculations specific to reoccupying each viewshed with reasonable accuracy. This adaptation shows potential as a refinement in standard cultural landscape research methodology, particularly given the evidentiary weight often associated with historical views commonly used in the assessment of both rural and urban vernacular sites.

The importance of suitable image types may seem self-evident. A survey of the literature, however, makes clear that numerous variables affect the kinds of archival photographs that may or may not be available in any given site. The research design therefore proposed and refined the use of specific criteria to select appropriate photographic sources for investigation. Procedurally, this criteria-based technique responds to a known collection of image sources associated with a geographic locale, rather than photographs of a specific, pre-identified site, as is often the manner of cultural landscape investigation. The use of a large photographic collection informed a workable project scope for the dissertation, yet also revealed a potential weak point, as criteria were defined and ordered, prior to selection, without exhaustive consideration given to locally available supporting sources (i.e. maps, aerial imagery, and geospatial data). In practice, it became clear that the proposed criteria for selecting source images from within a larger collection can become more inclusive, if supplemental records are consulted during the

preliminary stage of analysis (in order to lend additional clarity to historical surroundings). One possible implication is that it may well be possible to narrow a preliminary subset of source photographs more efficiently than was demonstrated with the E.W. Merrill Collection. Another implication is that criteria-driven selection could actually be more fluid in practice than the somewhat rigid format developed here. Ultimately, the design of systematic criteria as a function of established cultural landscape characteristics serves as a springboard for future refinement; this study reflects an early attempt to develop a working model.

The particular sequence of the research method is worth noting. It became clear that a phased approach to source selection and analysis had merit—in effect increasing a sense of certainty in actually locating the associated site and camera station locations at ground level. Distinguishing the analysis of source images using a cultural landscape framework-derived approach from the field application of reconnaissance and rephotographic techniques helped ensure extensive and sufficient preparedness for locating and orienting views. This provided a reassuring answer to the question embedded as subtext in adopting an archive collection-driven method; that is, can two-dimensional images with few or no explanatory cues and only a rough sense of geographic locality be successfully translated retroactively into three-dimensional space, after nearly a century?

Adopting the cultural landscape framework as a systematic means to parse the contents of each source proved workable as a discrete phase of analysis to identify, organize, and orient data derived from close scrutiny of photographs. This finding reinforces the applied value of rephotographic analysis in order to negotiate the spatial, temporal, and visual translation required to achieve some alignment between past and current viewsheds. Implementing the same step,

with each characteristic examined systematically, proved invaluable as a vehicle for attaining sufficient depth and detail in the analysis of each selection.

Additionally, this approach holds possible value for the design and application of landscape preservation stewardship practices, including various treatment recommendations. A detailed and systematic reckoning of landscape features within historical photographs, for instance, remains directly applicable in assessing and staging effective viewshed management, including where a precise rephotographic pairing is not otherwise practical or feasible. Cultural landscape stewards will, no doubt, benefit from a more detailed, procedural examination of existing photographs as primary sources of baseline evidence in assessing and evaluating potentially significant features, separate from any attempts to re-occupy an historical camera station (i.e. viewpoint) in the site itself. Technical resources and rephotographic acumen should not in itself be considered a barrier to utilizing the cultural landscape framework within the study of photographic sources.

In the field, moreover, the cultural landscape framework provides a robust conceptual and procedural scaffold. First considered for this study as a transferrable means to identify possible reference features in an archival setting, this subsequent application illustrates one of the more enduring uses of the framework in qualitative research: as a thinking tool, it guides observation and marshals focus amid visually complex and sometimes challenging physical or environmental conditions. Formatted for quick reference at each camera station as a physical spreadsheet, too, a cultural landscape framework-driven system of organization facilitated the level of information management needed to confront these conditions working solo.[194]

[194] Prior experience indicates that photo-documentation tasks in unfamiliar field settings benefit demonstrably from working in teams of two, with three being ideal. In comparison, demands of operating alone make efficient information management nothing short of essential; managing equipment is also a consideration.

No less important, the organizational flexibility of characteristic types embedded within the framework provides an efficient means to assess and adapt to unanticipated visual conditions, such as substantial changes in surface grade (S-03, S-05) or flow level (S-04). Future research should seek to understand whether a specific procedural sequence may be applied to the ordering of cultural landscape characteristics adapted for the research method—perhaps as a function of attributes such as the (perceived) physical scale of features, the area within the frame of the source image, or proximity to the camera lens (i.e. depth of field or grounding). For instance, could the position of particular feature types with respect to viewshed zones (e.g. foreground, midground, background) play a more detailed role in guiding rephotographic analysis? Or, how might the sequence of characteristics analyzed in sources shape the analysis of reference features? Is there a practical limit for analysis or fieldwork concerning distances (or spatial area) among reference features encompassed within longer viewsheds? Such research avenues will likely rely on the use of more quantitatively focused modes of inquiry in modeling or testing refinements, such as are already the case in other realms of visual landscape assessment.

Ultimately, these possibilities underscore the conviction that the cultural landscape framework is not merely a conceptual matrix for grouping distinctive site attributes in the abstract. Rather, as cultural landscape scholar Susan Dolan has noted, the cultural landscape framework can be seen as an evolving "latticework" for orienting the tools and techniques of continued stewardship, as validated in the design and application of cultural landscape characteristic-informed attributes at the core of dissertation research.[195] Horticultural connotations notwithstanding, Dolan accurately stresses an *ongoing* need among practitioners to

[195] Susan Dolan, Ellis F. Lawrence Medal Lecture, January 30, 2020, University of Oregon. See also Chris Beagan and Susan Dolan, "Integrating Components of Resilient Systems into Cultural Landscape Management Practices," *Change Over Time* 5, no. 2 (Fall 2015): 182, 192-193.

accommodate growth in how cultural landscape resources are documented, an idea which is consonant with the need to engage preservation research through deliberate and iterative techniques for photographic source analysis. Use of the cultural landscape characteristics to more systematically interface archival sources with fieldwork offers one possibility for continued growth.

Rephotographic research helps, furthermore, extend the value of the cultural landscape framework as an organizational scaffold into strategic planning for future documentation needs. In this sense, it behooves practioners to examine how current photographic imaging techniques, survey routes, and spatially explicit fieldnotes might inform forthcoming documentation surveys, as contemporary records and emergent historical sources alike. To do so requires continued efforts to rethink and realign supporting photographic research practices—particularly with respect to archival sources, and how to systematically reclaim or sustain their potential connectivity with cultural landscape features.

7.1.1 Spatial Scale and Context

The importance of spatial awareness in designing field technique comprises another finding of this work. Rephotography, at its most basic, is the challenge of returning a two-dimensional view to a fixed location in a dynamic, three-dimensional space. Despite strides in computational rephotography, which purport to refine imaging accuracy in positioning and orientation through software "visioning" applications, the process remains reliant on the practitioner's ability to restrict the area of inquiry through supporting sources and techniques—

particularly when recognizable architectural or structural features are not present.[196] Known study areas, as in the case of Sitka, help to confine the variables inherent in spatial reckoning to a more manageable physical scale. Local knowledge notwithstanding, it is important to recognize that sound rephotographic practice remains dependent on sound spatial reference sources.[197]

The ability to successfully recognize and utilize extant reference features in the field, likewise, benefits from considering how location and orientation of prospective camera stations relate to identified characteristics in the surrounding landscape. This research shows that certain cultural landscape characteristic types are well suited to broader, longer scales of viewing, as in the case of distinctive upland and alpine terrain as Natural Systems & Features and (Natural) Topography. In the example of spruce canopy recorded in several sites, the effects of parallax and an acute-angled lens combine, both historically and today, merging distant, individual trees into massed groups; this merger is most noticeable for reference features situated at midground or farther back in the viewshed (Fig. 7-1). Resulting attributes such as form and relative size can be used among deductive comparisons in refining the location and orientation of the rephotographic camera station.[198] Along with a coastal mosaic of island landforms and native vegetation, these feature types support the overall situating of views with respect to a more

[196] Soonmin Bae, Aseem Agarwala, and Frédo Durand, "Computational Rephotography," *ACM Transactions on Graphics* 29, no. 3 (June 2010): 1-15, doi:10.1145/1805964.1805968. For related technical topics in computational analysis of photographic attributes, see also Rastislav Lukac, ed., *Computational Rephotography: Methods and Applications* (Boca Raton, FL: CRC Press, 2010); Paul Zammit, Andrew R. Harvey, and Guillem Carles, "Extended depth-of-field imaging and ranging in a snapshot," *Optica 1*, (2014), 209-216, https://doi.org/10.1364/OPTICA.1.000209.

[197] Differentiation among map resources delineated according to true (T) or magnetic (M) North is a distinct, albeit subtle factor in their usefulness in supporting rephotographic analysis.

[198] Early experimentation with rephotographic techniques in vernacular sites under extensive canopy suggested, correctly, that massed vegetation proved unreliable as a foreground reference feature type.

spacious landscape scale, as exemplified in selected source images capturing substantial distance in depth.

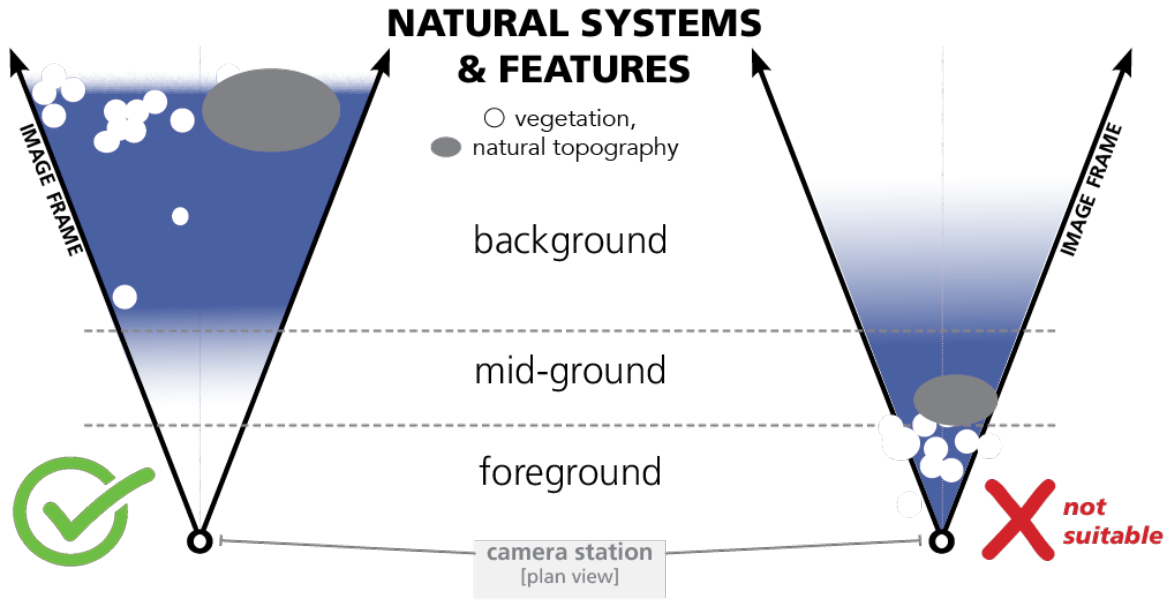

Figure 7-1. Concept diagram comparing viewshed grounding for reference features of large-scale cultural landscape characteristic types in rephotographic applications, such as Natural Systems & Features. Gradient illustrates generalized extent of focal depth.

Small-scale and structural features, by comparison, are often suited as reference points for more confined kinds of viewsheds with a shallower visual depth of field (Fig. 7-2). This is frequently the case for individual plant specimens (i.e. Vegetation), both for the purposes of field recognition (i.e. structural proportions and location among nearby features) and the capture of detail in rephotographic images. In cases of particularly deep viewsheds, a wide range of small-scale features are not necessarily visible from the vantage point of a ground-level camera station, let alone useful as distinct reference features. Wide variability exists with respect to characteristics such as Patterns of Circulation and Spatial Organization, whose features may be apparent or obscured across an array of distances and perspectives. In effect, comparison among rephotographic pairs noted that the recognition and repeatability of some cultural landscape

feature types (and location) appears to occur relative to the size or depth of source viewsheds. The same comparison suggests that some cultural landscape feature types (characteristics) are more well suited to particular visual fields (foreground, midground, background) for the purposes of establishing accurate camera orientation.

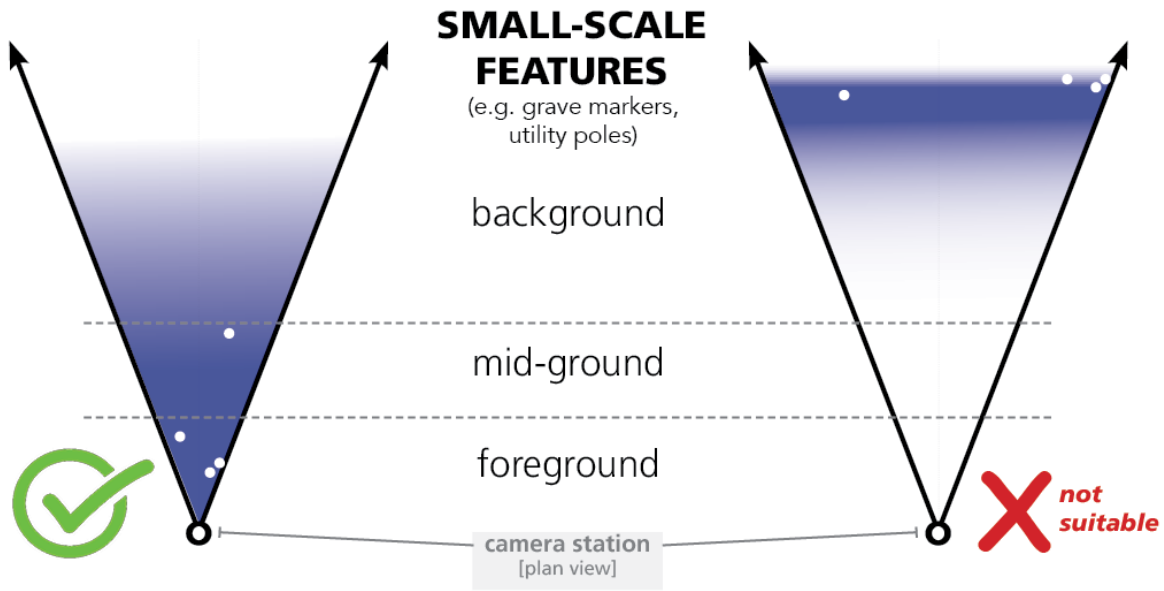

Figure 7-2. Concept diagram comparing viewshed grounding for reference features of small-scale feature types in rephotographic applications (see key in previous figure). Gradient illustrates generalized extent of focal depth.

The successful identification of each rephotographic viewshed entails the need to analyze the reference features according to an appropriate spatial scale, as reflected in the choice for supporting reference sources such as geospatial datasets, topographic maps, or historical surveys. Future studies may explore this consideration in greater depth, perhaps furnishing researchers with more specific parameters for situating or contextualizing viewsheds to varying extents. Climatic elements of the study area, often highly variable, may likewise be mitigating factors in this consideration: cloud cover and rain, for example—both familiar conditions for islands in Southeast Alaska's Alexander Archipelago—can restrict the depth and detail of viewsheds along

with general visibility. While this study has predominantly concerned itself with the terrestrial landscape, rather than its meteorological dimensions, a holistic sense of the forces acting on visible space is useful in assessing viewshed depth. These reinforce the dimension of time—seasonal cycles of vegetation growth notwithstanding—in determining when to reoccupy a given camera station.[199]

Diversity is also an important consideration among the types of reference features. Because the cultural landscape framework is applied holistically—rather than precisely—as a means to identify and locate discrete features, its applicability is limited with respect to views of only a single or non-varied landscape feature. Suitable source imagery, therefore, should be confirmed based on the identification of several discrete reference features of differing types. Testing with respect to selected viewsheds has affirmed that distinctive structures and small-scale features may substantially heighten the possibility of feature recognition in historical built environments, as they frequently figure visibly among subjects featured in source photographs. Such sites may well serve as a particular kind of rephotographic subset within cultural landscapes, given the supposedly broad tendency to focus substantial photographic attention on the built environment. Likewise, variation among feature types is valuable in heavily vegetated viewsheds—including beneath dense canopy cover—where homogeneity can otherwise be problematic.

A wide range of historical photographs contain compelling information for the study of cultural landscapes, yet for lack of typological diversity their recorded views may not be appropriate as rephotographic sources. A survey of archival photographs depicting sites associated with Anglo-Yurok cultural landscapes in the 5,600-acre Lyons Ranches Historic

[199] Wind patterns similarly inflect local conditions, in propelling cloud cover through viewshed areas; 3-7mph S-SE winds predominate the study area, for example, which stand to influence field conditions.

District of Redwoods National Park offer a case in point. In the main, identified photographic views depict upland areas characterized by few feature types, their ground planes by and large visually dominated by upland native vegetation (Fig. 7-3). Where smaller-scaled features *do* appear, such as with an unspecified spring box (Fig. 7-4), the image's tight framing and close-up composition excluded possible surrounding reference features in depth—distinctive topography, jeep trails, fence lines, or sheep sheds. Such extremes are not well suited to furnishing appropriate cues needed to confirm view location or establish accurate spatial orientation. Such images make for poor rephotographic sources in the cultural landscape.

Figure 7-3 Unidentified early view from Lyons Ranches Historic District, Redwood National Park. Feature types are relatively homogenous here, within more than 6,000 acres of upland savannah and fir-oak woodland, underscoring the benefit of other locational cues for orienting viewers not already intimately familiar with the locale. (Antone 5-1/NPS-REDW)

Figure 7-4. Unspecified spring box (i.e. ranching water feature), seen in an undated detail view associated with Lyons Ranches Historic District. (Lyons Family Collection/Margaret Pollard/NPS-REDW)

This study has reaffirmed that detailed spatial orientation must be maintained in the field, even beyond the immediate bounds of the viewframe. This is particularly true when the viewshed has altered substantially enough to justify triangulating a viewframe through distant reference points or features, with the use of compass bearings and accurate topographic surveys. Although these frame bounds can be calculated in some instances, and even reconstructed blindly by triangulation, to do so is a labor-intensive undertaking. Here, documenting the viewpoint itself is insufficient: sightlines should be mapped in detail, demonstrating the *depth* which corresponds to source and rephotographic views. The resulting representation appears more vector-like, graphically, and is not necessarily symmetrical. (Appropriate graphic conventions merit further investigation, likely as a point of continuing experimentation and

refinement among cultural landscape practitioners.) In any event, documentation considerations beyond assigning point attributes for camera stations should influence the reckoning of time and energy prioritized for a given site. Utilizing rephotographic techniques in planning detailed assessment should reflect a sufficient level of component detail for each source view.

7.1.2 Geolocation as Strategy

Applied in a cultural landscape, a reasonably accurate record of a camera station's precise geographic location serves to retain and clarify the link between virtual perspective (viewshed) and physical position, once established. The previous chapter has demonstrated that a grasp of physical context is intrinsic to the successful identification and orientation of the historical camera station; indeed, this kind of *initial* knowledge rarely accompanies photographic sources from a pre-digital era. For the scope of this study, the intrinsic value of the process exists in establishing accurate rephotographic image pairings as a basis for knowledge gathering, a process which remains interwoven with spatially explicit media—historical maps, topographic surveys, and other spatial records. The same process can and should be applied to contemporary site documentation photography, as a strategic baseline for future, iterative repetition.

The process, ultimately, is at least partially a dialogue between image and site, mediated by the forces of change. As a form of landscape inquiry, reconnecting image and place in a lasting record requires looking outside the viewfinder or fixed-image perspective itself. Considered on its own, as landscape scholar John Jakle has argued, a two-dimensional site photograph is stripped of multi-dimensional depth in space.[200] In the reconnection of the source image with its place of origin, it is fair to conclude that rephotographic documentation is not

[200] John A. Jakle, *The Visual Elements of Landscape* (Amherst, MA: MIT Press, 1987), 123-124.

terribly removed from human geography at the root of the cultural landscape paradigm itself. Cultural landscape rephotography remains a distinct means of visual mapping, albeit with a heightened temporal dimension, and should therefore be contextualized in a spatially explicit setting.

This principle is central to the effective application of source image analysis, but also to the creation of a record for future repetition. Because the visual relationship present among the configuration of distinctive cultural landscape features in a viewshed provides cues to their ongoing condition, it behooves researchers to consider how to position and orient repeated views with consistency. This type of foresight extends beyond the binary realm of before-and-after, of then-and-now; rather, it recommends the merits of thinking and planning for a *series* of monitoring views, occupied and re-occupied repeatedly over future intervals. This sort of dynamic thinking belongs in the design of cultural landscape treatment frameworks—the essential, guiding philosophy of ongoing stewardship for the spaces governing these viewsheds—in addition to the specific, discrete treatments (alteration measures) planned by managers for viewsheds themselves. The design of criteria to determine the appropriate frequency of rephotographic intervals remains to be fully explored, yet the interval frequency is similarly germane to the design of cultural landscape treatments and stewardship thinking.

As practitioners gain access to geospatial information tools of increasingly finer-grained resolution and precision, the possibility of ever more specific viewshed geolocation and orientation continues to mature.[201] For cultural resource managers, the ability to interface accurately geolocated historical map imagery with archival photographs underscores the

[201] Stephen R.J. Shepherd, "Laser-Scanning for Landscape Planning: Implications for Policy and Practice from an End-User's Perspective," *International Archives of Photogrammetry, Remote Sensing, and Spatial Information Sciences* 36, no. 8/W2 (2004): 240-241.

importance of precise wayfinding. If a microscopic grasp of site-level detail is a foregone conclusion in plan view, as far as LiDAR and three-dimensional laser scanning technologies are concerned, a sense of how to integrate numerous surface-level rephotographs remains subject to additional considerations.

As DSLR and mobile photographic devices incorporate more accurate and precise means of logging geodata as a part of image file metadata, it would seem that some variables associated with reoccupying rephotographic camera stations could be reduced. Better still, minimizing spatial margins of error in geolocating these views suggest the possibility of selected integration with georeferenced historical map imagery.[202] A byproduct of evolving geo-precision could certainly include a simplification in the complexity inherent in fieldwork, along with increased confidence in the lasting accuracy of documented camera stations (viewpoints). If the act of creating professional photographic records of site features could likewise more consistently orient as well as position viewers onsite, then it is reasonable to suspect that the systematic qualities of cultural landscape photo-documentation could likewise benefit. Cumulatively, for cultural landscape researchers and managers alike, this possibility suggests a heightened means to affix historically aware visualization in the record of dynamic spaces over time.

Despite the power and flexibility of perspectives harnessed and manipulated in popular modeling applications like ESRI's ArcScene and 3D Analyst,[203] these tools also retain an inherent plan-view (or bird's eye) sense of sites, somewhat disconnected from human scale and orientation. Recognizing this underscores how repeatable, ground-level viewpoints are a timely resource to supplement remote imaging, together with bearings and viewshed distances. Situated

[202] USGS topoView (National Geologic Map database) and 3DEP viewer are possible examples.

[203] Currently integrated as a part of ESRI ArcGIS Pro software environment.

within the growing power and capacity of GIS survey databases, this is particularly the case for smaller-scale features. Ground-level, human-scale perspective is an essential ingredient in grappling with visible change over time during the past and future alike.[204] Site monitoring and ground-truthing practices embody a similar precept; returning to the scene of the view cannot fully be accomplished from a remote desktop. The need remains to narrow the gap between plan (overhead) and photographic (ground-level) perspectives in cultural landscape documentation.

7.1.3 Rephotographic Lens: Selection and Implication

Lens choice, while ostensibly a technical detail, is found to have a distinct effect on delineating the spatial scope of rephotographic pairing. The focal length created in E.W. Merrill's source camera(s) – that is, the distance between lens center and the photo-sensitive surface of each glass plate negative – may have measured roughly 150-210mm at full resolution, based on the dimensions of surviving physical evidence.[205] Feasibility considerations dictated that this predetermined range would not be matched at full (1:1) resolution with available lens and sensor tools for fieldwork, and the proposed research method inferred that achieving a precise match between plate image dimensions and rephotographic sensor size was not essential. Reconnaissance of prospective camera stations in the field indicated that deeper viewsheds, which include longer physical distances between foreground and background areas, resulted in more apparent discrepancy between the field of view available between source and

[204] Shepherd, 244; K. Pavelka, E. Matoušková, K. Pavelka, Jr., and J. Pacina, "Spatial 3D Documentation of Historical Mining Remnants in Forested Area in the Erzgebirge/Krušnohoří Mining Region UNESCO Site," *International Archives of Photogrammetry, Remote Sensing, and Spatial Information Sciences* 46, no. 1 (2021): 528.

[205] For a typical 35mm lens format, this approximates a 24-28mm focal length.

rephotographic views. Exploring this relationship seems to be ripe fruit for future investigation, including its possible implications in analyzing and reverse-engineering historical views.

Suggesting a large degree of control over depth and focus properties, telephoto lenses hold appeal as a means to frame a wide variety of landscape views at distance. A variety of available professional models, too, are likewise seductive for their substantial zoom capabilities, with an accompanying feeling of immediate visual command for the researcher. Field reconnaissance, however, confirmed that telephoto lens types are often inappropriate for rephotographing cultural landscape reference features configured as a part of longer, more physically extensive viewsheds. Over 200mm, lens behavior results in several problematic side effects, each of which may be misleading in a record of cultural landscape features.

One such side effect is the occurrence of inherent distortion, sometimes known as vignette, apparent around the corners of images recorded using telephoto lenses at shorter or longer extremes (i.e. beyond 300-400mm). In addition to an inherent loss of detail and legibility, vignetting can imply what is, in effect, an unrealistic contrast between image areas in rephotographic pairs or with conditions in the physical viewshed itself; specific symptoms can include phantom shadows or a skewed sense of daylight, shadowing, or contrast. Precise focal lengths are also difficult to duplicate in that zoom levels are rarely fixed, which in turn undermines a sense of actual repeatability.

Second, by their very nature, longer focal lengths constrict the apparent viewframe and clarity in any repetition in subsequent landscape images. Compared with the characteristics seen in traditional lenses, this configuration elides a substantial amount of comparative visual information. This effect also increases over distance, resulting in a framing mismatch akin to comparing the illumination of a narrow penlight with that of a large lantern (Fig. 7-5).

Furthermore, the same effect erodes transparency in accurately identifying and reoccupying an historic camera station; the result is a tacit suggestion that the viewer is positioned closer to the reference features than is factually the case.[206] Similar effects are also common in wide-angle lenses, in which vignetting-type distortion is typical. Because rephotographic technique is predicated here as *enhancing* visual comparison, rather than restricting it, practitioners should seek to identify and use lenses appropriate for the site and specific viewshed, including the possibility of matching historical focal length for comparison.

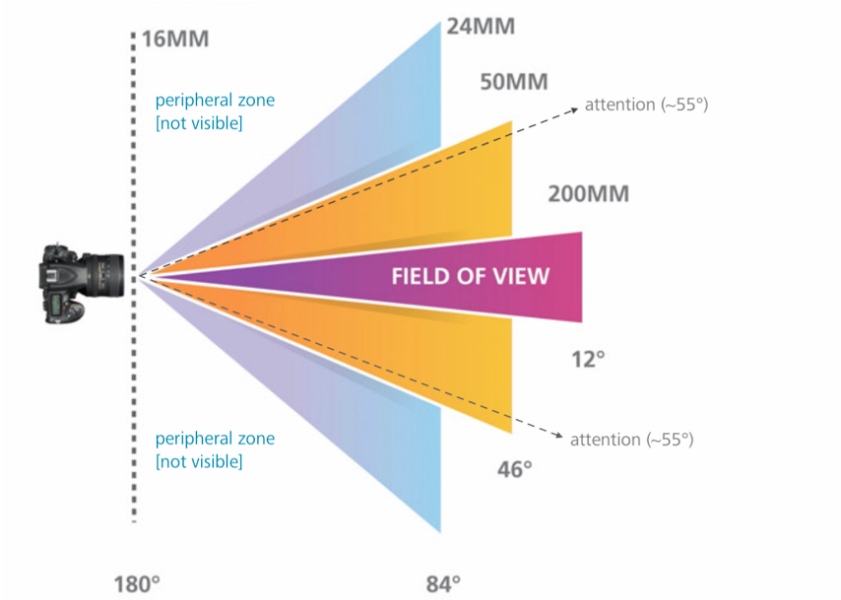

Figure 7-5. Photographic field of view typical of Nikon DX lens type, progressively constricted as focal length increases. For context, outside the viewfinder, observer attention approximates a 55° field. (diagram: Lindsay Silverman, 2020; annotations by author)

Mobile devices, likewise, are not particularly desirable at present as a standalone tool for effective rephotographic field use, even considering recent strides in sophistication. This conclusion derives from two considerations: First, the combination of a relatively narrow field of view and *much* shorter focal length encourages the user, if perhaps unintentionally, to

[206] See also discussion of film transparency sheets and the effect of enlargement or reduction on scale with regard to location accuracy in the preceding chapter.

inaccurately assess viewpoint location (Fig. 7-6). An informal survey of focal lengths in several popular devices suggest that 7.5mm and under are still the norm, including current models from Apple and competitors, comparable to broad variations in full-frame camera sensors. Results include, notably, an altered sense of the relationship between and among site features, possibly including reference features, not to mention between viewer and site (Fig. 7-7). This strongly implies additional variables (and increased difficulty) both in accurately reoccupying a given historical camera station and contending with difficulties in assessing differences among feature location, scale, and distance. Second, the capability of sensor resolution remains low enough here to call into question the viability of detailed comparisons between features located in image backgrounds.

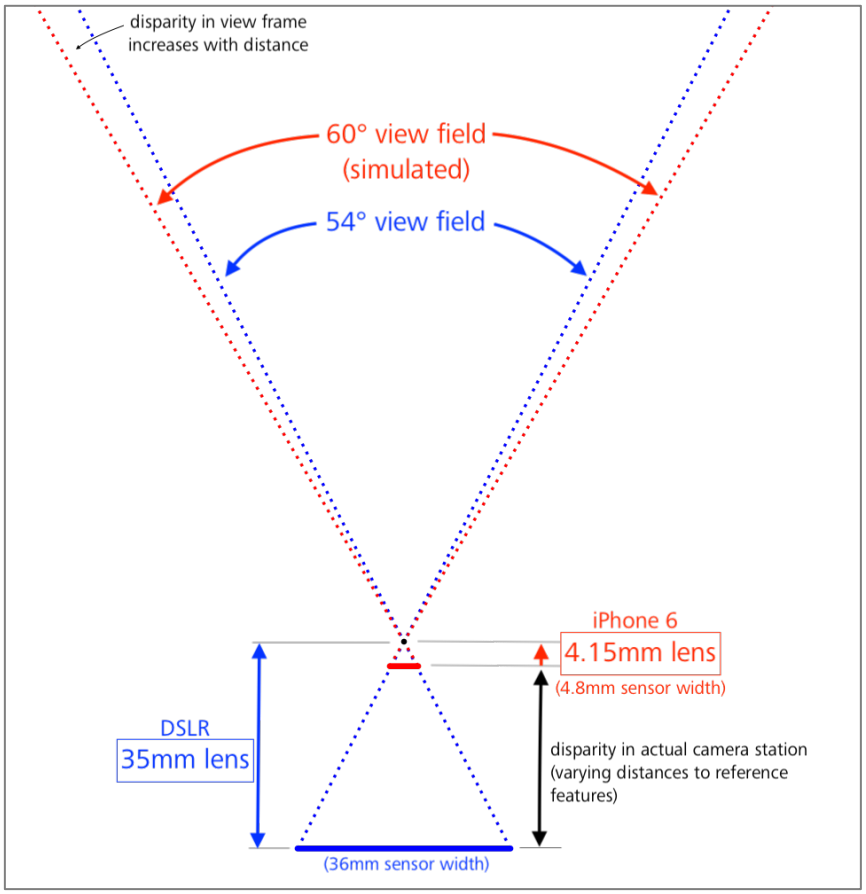

Figure 7-6. Diagrammatic comparison of typical mobile and traditional lens format in field use. For comparison, viewer focus outside a camera viewfinder is roughly 50-55° wide, within a field of view of approximately 95° (a focal length of 20mm).

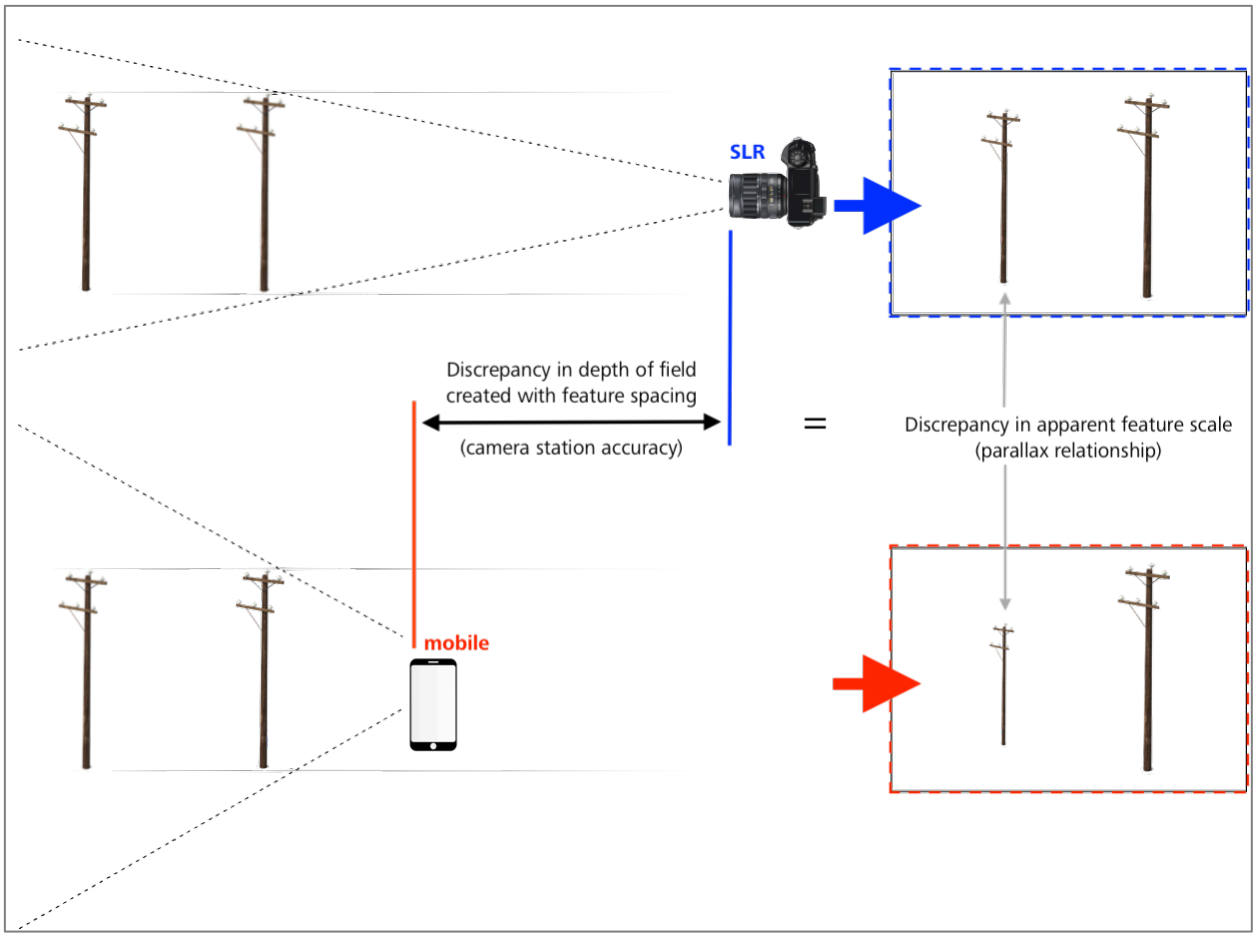

Figure 7-7. Simplified diagrammatic comparison between DSLR and mobile device imaging configurations in field use. (author, 2020; graphic objects courtesy of F. Malan, 2018)

Ultimately, this finding suggests that practitioners use the mobile camera principally as a secondary, or supportive tool in rephotographic applications, notwithstanding benefits accompanying its increasing familiarity, flexibility, and computational power. Examples of useful applications here, including geolocation and accessible satellite navigation services, have been included in prior methodological discussion; as a host platform for powerful processing, tactile interfaces, and increasingly specific geolocation, these can play worthy supporting roles in field investigation. Tablets, iPhones, and similar equipment will no doubt remain interwoven in rephotographic methods for the foreseeable future, particularly as geospatially accurate mobile

applications become increasingly the norm for locating and inventorying cultural landscape features.[207] Meanwhile, it remains important to assess how and when to best deploy them, recognizing the favorable photo-sensing capabilities of APS-C and larger formats.

7.1.4 Rephotographic Occlusion: Obfuscation or Opportunity?

Chapter 5 presented case studies in which cultural and environmental changes have resulted in the partial or whole screening, or occlusion, of rephotographic views (e.g. S-09, S-10). The visual artifacts of this scenario were accompanied by a certain amount of disappointment, initially, yet the fact remains that the result was a stark illustration of landscape process revealed over time. This foiled view of a prominent hilltop vista, replete with its rich complement of distinctive reference features, makes plain the fact that change over time is a messy prospect.

The temptation to sidestep obstructions by slightly skewing camera position, or to shorten the depth of field by compromising dolly (linear distance from the center of image frame) was present during fieldwork. The enticement to remove or push aside vegetation from obstructing the viewframe, with no one else the wiser, is also indicative of a lasting ethical tension in locating and reoccupying a fixed point within a dynamic landscape: layers of change overlaying the palimpsest of landscape are not necessarily photogenic. A viewshed in actuality may no

[207] Basic mobile snapshots of manual notes and logs provide an efficient means to create daily "back up" copies of field data. While not a particularly elegant mode of organization or imaging, these images represent a valuable investment in caution and peace of mind in maintaining focus and efficiency onsite. Firsthand experience suggests the appeal of incorporating such techniques into formal research design, in contrast to their seemingly *ad hoc* nature. These snapshots should not be considered analogous to medium- or large-format tools. iPhone is a trademark of Apple, Inc.

longer fit a previous aesthetic or informational conception of the view.[208] Recognizing this process underscores the abiding need to disambiguate practitioners' scenic expectations for a site from its factual disposition.

Nor is this tension a recent realization. Noted photographer and antiquarian artist Wallace Nutting (1861-1941), roughly a contemporary of Elbridge Merrill, typified in many ways the first era of would-be landscape history photographers in the 1920s, felling awkward saplings he encountered with a hatchet carried for the purpose. Nutting urged his acolytes to do likewise, suggesting "an old fashioned jackknife" as a viable alternative.[209] At the same time, elsewhere in New England, he highlighted birch forests (Fig. 7-8) according to historian Thomas Andrew Denenberg, specifically to illustrate them as evidence of farmstead landscapes' historical field clearing practices.[210] Historian John Stilgoe suggests that Nutting also retouched negatives in order to expunge telegraph poles from roadside site views.[211] On the whole, this legacy can be considered a foil for the procedural transparency vital to cultural landscape documentation. It reminds us, too, that rephotography stands to shapes the contours of the *future* historical record—echoing the emphasis placed by David Lowenthal in caring for how historical evidence is "transmitted, preserved, and altered."[212]

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[208] The well-known plate images made by Carleton Watkins and Eadweard Muybridge at Yosemite, tantamount to an early iconography of the area, offer a variety of examples; see also Melnick, "Nature and Culture in Historic Landscape Preservation," in *Preserving Cultural Landscapes in America* (Baltimore, MD: Johns Hopkins University Press, 2000), 30-32.

[209] Wallace Nutting, *Photographic Art Secrets* (New York: Dodd, Mead & Company, 1931), 108-109.

[210] Thomas Andrew Denenberg, *Wallace Nutting and the Invention of Old America* (New Haven, CT: Yale University Press, 2003), 52.

[211] John R. Stilgoe, "Photographed Landscape," in *Landscape and Images* (Charlottesville, VA: University of Virginia Press, 2005), 304-305.

[212] David Lowenthal, *The Past Is a Foreign Country* (Cambridge, UK: Cambridge University Press, 1985), 212-213. For further discussion of photographic evidentiary ethics, see Douglas W. Cromney, "Digital Images Are Data: And

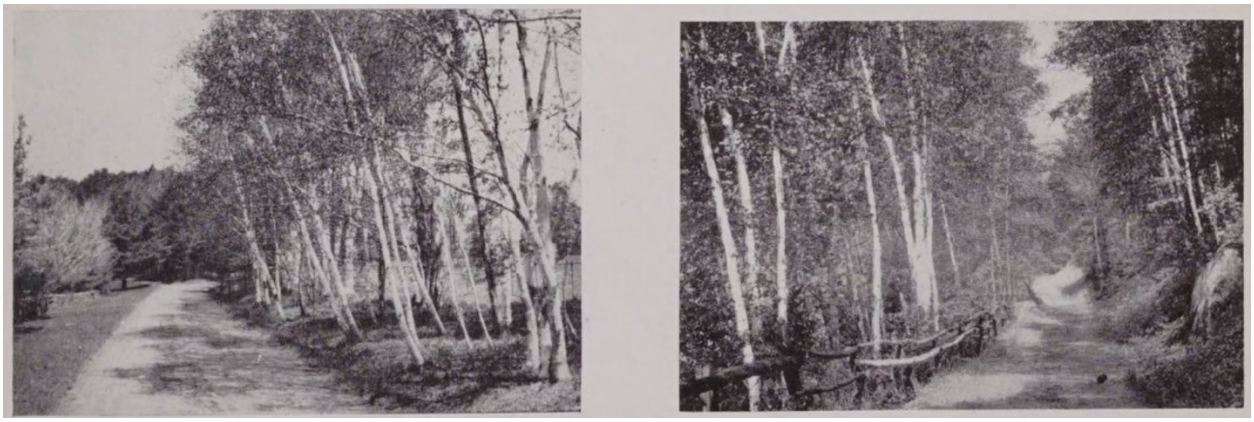

Figure 7-8. Reproductions of selected Nutting landscape photographs "A239" and "A277," from his 1917 studio catalog. (LoC 15007167, p13)

The issue of manipulated views raises questions for current and future practitioners, who should expect to encounter similar, non-photogenic scenarios. Do we record views with photographs (and rephotographs) to consume them visually—to reinforce or idealize a desired state, for instance—or to document existing conditions, warts and all? In the context of a historic preservation ethic, in the event of an occluded view, landscape rephotographers should record, log, and map a source image as a *facet* of broader, mutually supportive site documentation techniques, clarified and contextualized by spatial data and supporting views. Doing so provides further opportunity to note specific changes that have occurred in the landscape, as well as to consider how best to communicate this information to other researchers. Moreover, it helps make a case for the preservation or protection of viewpoints as a distinct component of managing the broader viewshed itself (rather than conflating them).

Sitka case studies have confirmed that rephotographic researchers can indeed reoccupy selected historical viewsheds through the systematic analysis of cultural landscape reference

Should Be Treated as Such," *Methods in Molecular Biology* 931 (2013): 1-27, https://doi.org/10.1007/978-1-62703-056-4_1.

features. This finding also holds true for scenarios wherein reference features are largely occluded from the vantage of a prospective camera station in the field; a similar viewshed can be achieved through supporting geospatial resources, such as appropriately scaled topographic surveys, oriented and framed with aid of triangulated compass bearings. This finding is reassuring, yet it also reveals how practitioners face something of a quandary in how to present the occluded rephotograph. One implication is the continued reliance of rephotographic pairs (or series) on some measure of explanatory text, beyond geolocation itself. In the thoughtful design of precise captions, labels, graphic overlays, superimpositions, and other addenda resides possibilities to build connections among ways of seeing reference features from differing and diverse professional outlooks, such as in historical archaeology and landscape history. Rephotographic *representation* for the cultural landscape remains a point of intersection for skill sets in various disciplines, each with distinct foci for viewing, comparing, and articulating these pairs—no matter how accurately or precisely executed.

Software applications, again, offer a tantalizing prospect in overlaying, compositing, and otherwise manipulating and representing rephotographic pairs in the digital realm. Practitioners should undertake careful consideration as to the advantages and disadvantages of their respective media tools, assessing them for goodness of fit for each site. With decreased photographic opacity comes the loss of perceptible detail. Semi-opaque composites or overlays of source and rephotographic views, for instance, rely heavily on the designer's choice of gradient or image alignment, in turn affecting where and how graphic transitions among historical and contemporary conditions appear within the viewframe. Similar representations may downplay or overstate the degree of change otherwise apparent in selected features, thereby skewing for decisionmakers and stewards the visual clarity or legibility that rephotographic tools might

otherwise help achieve. Caution is therefore necessary in determining how best to deploy precisely aligned views over time.

7.2 Limitations

7.2.1 Length of Rephotographic Interval

A rephotographic interval in this study embodies a finite encapsulation of time. The result is therefore not a complete document of place. Instead, the investigation imposes an implicit selection within a landscape's broader past, understood here as an inset within a period of linear, forward-moving history. A historical source photograph further narrows this period, in the words of environmental scholar Eric Higgs, to "a small nick on this arrow of time."[213] The subsequent rephotograph echoes an equally brief, later moment in the broader scheme. The interval between these, bookended by two fixed images, encapsulates a dynamic period that can extend well beyond a typical human lifespan. In the case of the Merrill Collection, this interval is useful as a means of ensuring apparent contrast between views, but the leap across time is substantial nonetheless.

Binary comparison between source and repeat view can have the effect of suggesting an overly coarse granularity of historical change – that is, suggesting seemingly substantial leaps or shifts in conditions, rather than the work of slower, subtler processes – familiar in "before/after" or "then/now" monikers. This effect is enticing, perhaps even compelling for the viewer, yet it also belies the subtle, gradual nature of change over time. Across this interval length, sites are subject to numerous seasonal plant cycles, patterns of succession, and possibly historical ranges of variation in human land development. Such cycles are important to consider and urge the

[213] Eric Higgs, *Nature by Design* (Cambridge, MA: The MIT Press, 2003), 140.

rephotographer to take care in distinguishing between evidence of what may be a typical cycle for a given cultural landscape and that which may signify more dramatic and lasting change. The duration of time further suggests that the cumulative effects of wet, oceanic local climate governing conditions in the study area have a bearing, too, on the fundamental legibility of a variety of cultural landscape feature types, particularly as a function of materials' longevity, durability, and exposure to weathering.

The interval of a century between documented views, moreover, suggests the likelihood of unseen change stemming from external human activity relating to selected sites. Considered against the backdrop of sociocultural and economic drivers, site management priorities often change from generation to generation, inflecting landscape processes that weave less visibly into the cumulative fabric of the site. Longer interval length increases the complexity of this interplay. Ultimately, the inability to "view" this interstitial period situates the research method as one better suited to identifying evidence of "what" and perhaps "when" in visualizing cultural landscape features over broad lengths of time, rather than the gradual "how" or even "why."

7.2.2 Inherent Limits of Source Collection

Accepting the Merrill collection as the basis for this research imparts an authority of its creator's own operational decisions. Where and how to position the tripod mount and camera, time of day, and season are all based on the selected photographic sources, as opposed to contemporary conditions or preferences.[214] As such, Merrill's compositional choices prove deterministic for where and how rephotographic views are staged. Furthermore, the same choices

[214] Merrill himself left no known overt explanation for his decisions with respect to these factors.

select for particular orientation of the sensor and lens, in turn determining which landscape elements are made available in the framing of source views. Although this study accepts these viewframes as an intrinsic part of the research method, these bounds reflect the reality that photographers do make choices, however unconscious, in authoring a limited view of space and time in the landscape.

What features to include or omit—which visual evidence—makes the source photographer akin to a one-eyed king in the land of the blind, to paraphrase landscape historian Catherine Howett.[215] The rephotographer must look where their predecessor points, if not exactly *seeing* in precisely the same manner. A rephotographer is not wholly free to ignore previous choices in location or orientation (conscious or otherwise) made in recording the source view, which may result from compositional techniques, technical parameters, professional acumen, commercial shrewdness, or even personal preference. The rephotographer is positioned, however, to expand or constrict the viewshed, supplement additional views, and scrutinize how the source view is situated in physical context. Recognizing this phenomenon heightens the need to assess place-based historical evidence through re-viewing landscape sites themselves firsthand, as Mark Klett has argued.[216] In adopting Merrill's camera stations as a specific locus of investigation, this study is also inflected with a bias for *his* perspectives. In first encountering Sitka remotely through Merrill's lens, this study's approach to various sites thereafter may well manifest something of an availability or anchoring bias, which is reasonable to acknowledge.

[215] Catherine M. Howett, "Where the One-Eyed Man Is King: The Tyranny of Visual and Formalist Values in Evaluating Landscapes," in *Understanding Ordinary Landscapes*, ed. Paul Groth (Yale University Press, 2009).

[216] Mark Klett, "Rephotographing Nineteenth-Century Landscapes," in *Second View: The Rephotographic Survey Project* (Albuquerque, NM: University of New Mexico Press, 1984), 40.

How to recognize, assess, or scrutinize landscape features onsite may well have been mediated by the choices shaping the creation of the primary source image.

The rephotographic process highlights changes made visible with time. Yet adopting Merrill's work as a set of primary sources accepts an inherent temporal constraint, seen in the interval created between each source and its rephotograph. As with all photographs, these plates designate only a selected moment and frame, restricted to when an individual photographer chose to expose the plate. Embedded here is the lesson that a photographic record, whether historical or contemporary, should not be taken as a finality statement, or a permanent synthesis of past conditions. Despite their ability to draw our attention to what is visually apparent, these single moments fall within a rich continuum of change that remains unseen. In the layering of viewing and views with care, rephotography creates a compelling palimpsest of two instants; it is neither a continuous time lapse with one distinct perspective nor an overarching view of many possible vantage points.

7.2.3 Limited View

The photographic field of view imposes a limited vision in the landscape, no matter the era of technology, historical period, or the photographer. Even technically excellent photographs, well composed and preserved, lack the benefit of peripheral vision. The research design for fieldwork incorporated this concern, although its execution varied among selected sites' conditions and context. In the interests of conducting a selective, tractable survey of EWMC views, this study narrows that vision. As such, it must acknowledge an implicit, fundamental distinction, between the myriad views, focal points, and detail available to the eye of the viewer

onsite, and those compartmentalized by lens and sensor. The camera is not a flawless, comprehensive proxy to vision.

An important byproduct is an implicit, selective bias for the rephotographer toward space—a tendency to prioritize contents of the photographic field of view over its surrounding physical context. Acknowledging this byproduct means acknowledging that rephotographic views are not necessarily a holistic documentation tool, but rather a specialized one, suitably implemented as a selective vehicle for historical analysis. Their resulting visual framing is a necessary technique of assessing accuracy and orienting landscape reference points, a way of narrowing attention to benefit rigor, but it can also impart tunnel vision. As previously discussed, landscape and photograph are not analogous, however immersive the latter may appear. Identifying this phenomenon ahead of time supported caution in attempting to identify and correctly locate selection sites and camera stations in the field. At Sitka National Cemetery, in one instance, the temptation to focus exclusively on the rephotographic viewshed and frame was persistent; it nearly cost the opportunity to identify Merrill's own grave marker, happened upon while reconnoitering the steep eastern slope of the historic section. Merrill's grave marker was eventually placed a matter of yards from the edge of his 1920s photograph (Fig. 7-9).

The value of site awareness beyond a single source image frame itself is fundamental to cultural landscape documentation. This includes broadening the visual reconnaissance of a site to better assess its complexity, as Godfrey argues, as an affirmation of fieldwork that operates among multiple views and perspectives.[217] Reconnaissance is particularly true for viewshed areas beyond the immediate foreground and often beyond the edges of the mid-ground areas. Views framed by the edges of Merrill's plate negatives implicitly exclude a wide variety of historical

[217] Godfrey, 63, 143-144, 163.

information. As a result of a selection design within this study method, selected views suggest an inherent limit within sites and perspectives investigated, as well as opportunities to expand on the source viewframe with more visually extensive rephotography; field investigation sought to achieve this to a modest degree through comparatively generous viewframes. Acknowledging a photograph's limited field of view reaffirms this method as one component within an interdependent toolkit of sources, reconnaissance techniques, and theoretical grounding in cultural landscape practice. These provide a means to identify, document, and further explicate what a single view may leave incomplete. Expanding on accurate rephotography with supplementary photographs, composed to build outward from the rephotographic viewframe, is one possibility among many techniques suitable to cultural landscape application.

Figure 7-9. Gravestone for E.W. Merrill,* view S*, located within Sitka Memorial Park, near the eastern border of the historic National Cemetery section. This small-scale feature was located just beyond the S-05 viewshed, suggesting that Merrill very nearly photographed his own (albeit future) gravesite.

7.2.4 Spatial Criteria and Design

The design of specific criteria for preliminary analysis did not address depth of field as a specific consideration for image selection. As adopted, substantial variation exists among the physical areas represented by image zones (foreground, midground, background) in photographs randomly identified within the selection subset. Variations in physical scale do provide a reasonable representation of the Merrill Collection, but also had the effect of reducing consistency in the supporting sources used to help locate, orient, and contextualize the primary source views. Sources suitable for examining broad image zones, such as identifying terrain via large-scale USGS survey map layers or navigational charts, for one, differ dramatically from fine structural detail inscribed in Sanborn surveys. Another side effect was the tacit limitation placed on the ability to reconnoiter, firsthand, those reference points spread across large areas of upland, offshore, or even alpine terrain. While close-up study of all reference features is not always necessary to establish their position in a rephotographic viewshed, potential doubts about their identification, form, scale, or materials can often be resolved in this manner.

Future research should consider more narrowly defining or constricting similar parameters of space, area, or distance among prospective source photographs, particularly in backcountry and maritime settings. Such settings often encompass relatively distant viewsheds, including sizeable background space (i.e. growing substantially wider with increased depth), in addition to practical challenges in accessing these areas. Among the hundreds of site views analyzed in the Merrill Collection, differentiating among variations in subject spatial area may lend clarity to patterns that may have influenced the photographer's selection of terrestrial subjects. Well defined views and viewsheds remain a valuable asset for cultural landscape inquiry—both as a means of more explicitly articulating in space landscape characteristics that

have traditionally been approached in thematic or abstract ways, and as a systematic frame of reference in managerial or stewardship decision-making.

7.2.5 Randomization Procedure

Distribution of research site locations emerged as a direct byproduct of source collection photograph randomization during the preliminary analysis phase of research. The results of this process dictated the selection of multiple camera stations in relatively close proximity, including instances associated with Sheldon Jackson School (SJS) campus and Russian Orthodox Cemetery. This effect on distribution proved advantageous for workflow planning and efficiency, but also precluded a more spatially diverse selection within the project area. As such, the selection process was not bounded by specific geographic considerations outside the extent and distribution of sites informed by Merrill's work, or by the localization of categories of recognized cultural landscape type (designed, vernacular, ethnographic, or historic site). Experience suggests that future practitioners consider randomization only as a means of contending with a sizable source group, where geographic scope is already delineated through existing project constraints.

Likewise, more strictly limiting selection size, according to a stratified or quota-based approach to selection of *particular* cultural landscape characteristics, rather than a holistic framework, is worth further consideration. Selecting for identifiable patterns of circulation or structures, for instance, may situate the focus of inquiry at a more consistent physical scale, for instance, in contrast to the variability intrinsic to natural systems and features. Other possible benefits of limiting selection extent may include a chance to scrutinize selected reference features in greater detail as a trade-off for variety. A more limited selection among

characteristics could also be reasonably suited to previously evaluated cultural landscapes, where historic significance has been previously established with respect to specific historic features in known locations—in effect a further distillation of comparative foci. Presumably, such a scenario would draw from contemporary as well as historical views. Ultimately, refining selection based on stratification of predetermined cultural landscape characteristics may be an expedient measure, perhaps at the risk of lessening its overall flexibility as a tool for source analysis. Substantial increases in selectivity among cultural landscape characteristics would likewise suggest a potential loss in transferability for numerous cultural landscapes distinguished by a broad range of historical feature types, such as Pajarito Site within Manhattan Project National Historical Park (1942-1956), or English Camp at San Juan Island National Historical Park (1859-1872).

As implemented, the source set succeeds in reflecting a reasonable cross-section of the cultural landscape characteristic framework, yet the research design likewise did not select among preliminary source subset in order to achieve a specific distribution according to feature type—for instance, features only associated with patterns of circulation or structures, or within a specific land cover setting. This was a conscious choice intended to facilitate an evenhanded approach to an unfamiliar project area at the outset of research, against possible selection biases related to familiar locations, known landmarks, or personal preference among possible views. This tack also reflects an awareness of normal external parameters often at work in cultural landscape research practice, as previously discussed, where source selection practice may be fundamentally restricted based on limited photographic source availability in public archives or private collections. In an era characterized by the proliferation of photo-visual media, this

More strictly stratified selections may be applicable in future research opportunities as a means to select for *specific* reference feature types, which may benefit more efficient work and the representative value of photographic sources selected.[218] Practitioners considering this alternative to inclusion/exclusion criteria should consider restricting its use, however, to applications assessing narrow facets within cultural landscapes—as opposed to a more holistic survey of space or place in a viewshed dataset. Too tightly constricting selection may impose unrealistic limits on smaller source collections, particularly when sources take the form of lower-resolution photographic prints or scans of prints, potentially resulting in fewer identifiable reference features. Imposing a more narrowed stratification within the established cultural landscape characteristic typology could also be the result of applying *a priori* knowledge of site character, rather than the more neutral design demonstrated in this work. Other variations, as with refining preliminary selection criteria according to additionally weighted characteristics, may likewise be worth examining.

Ultimately, for many cultural landscape documentation surveys, practical restrictions on the availability of suitable historical photographs suggest that project-based research approaches already reflect (or integrate) a selective, opportunistic selection of rephotographic sources, not unlike artifact assemblage scenarios reviewed by archaeologist Robert Drennan.[219] For sites blessed with extensive photographic collections, it behooves practitioners to weigh the need to

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[218] Raghunath Arnab, *Survey Sampling Theory and Applications* (Amsterdam: Elsevier, 2017), 213-256, https://doi.org/10.1016/B978-0-12-811848-1.00007-8; see also Robert Nisbet, Gary Miner, and Ken Yale, "A Data Preparation Cookbook," in *Handbook of Statistical Analysis and Data Mining Applications* (Cambridge, MA: 2018), 727-740.

[219] Robert D. Drennan, *Statistics for Archaeologists: A Common Sense Approach* (New York: Springer, 2010), 92. See also Edward Banning's review of several selection approaches in cultural resource management scenarios, "Sampled to Death? The Rise and Fall of Probability Sampling in Archaeology," *American Antiquity* 86, no. 1 (January 2021): 43-60. In that these approaches tend to conceive cultural objects as a part of spatially coherent assemblage, extending similar approaches to photographic plates as primary sources for landscape history should recognize the diagnostic value of view orientation as well as location.

scale efforts according to project resources, against that of selecting for relevant image and feature types. Practitioners should further recognize that treatment-oriented scenarios, common enough in cultural landscape practice, will almost certainly drive image selection according to *exact*, known landscape features. Such situations are perhaps furthest removed from randomization, embodying an overtly opportunistic selection, rather than one achieved through typological classifications in a project area.

7.2.6 Parameters for Field Investigation

For purposes of tractability and budget, fieldwork was limited to a single, continuous period, targeted for the summer season.[220] The opportunity to stage multiple visits, staggered to draw from a variety of seasonal conditions, would have been a welcome source of qualitative insight and lent further comparative depth. (Merrill's landscape views spanned several seasons, where mild conditions enabled nearly year-round work outdoors.) Inclement weather during fieldwork, while not severe enough to up-end contingency planning, also limited the time available for detailed scrutiny of natural systems and features, most notably within the Upper Indian River Valley and Sitka Sound. This underscores the timeless gamble involved in contending with seasonal climate in unfamiliar terrain, as well as ground-truthing remote analysis, despite consulting an array of historical and contemporary meteorological background, local guidance, and risk-averse planning.[221] I was glad to have prepared conservatively, yet none the happier to be scouting distant landmarks through a downpour in the Tongass.

[220] Tractability considerations included NPS staff availability, varied weather conditions, and access, weighed among a variety of additional factors.

[221] Gerd Wendler, Kevin Galloway, and Martin Stuefer, "On the climate and climate change of Sitka, Southeast Alaska," *Theoretical and Applied Climatology* 126 (2016): 27-34.

While photographic evidence within selected sources yields a wide range of diagnostic evidence—for instance, shadow direction and length, types of plant growth, and even detail associated with costume or specific, documented events (Fig. 7-10)—many EWMC images withhold a definitive sense of the precise year or date of their creation. As plate negatives, their form factor precludes verso captions or notations that might have lent further cues.[222] NPS gallery databases also manifested several errors in descriptive metadata noted during preliminary analysis, for instance captions clearly mismatched among various plates. While such occurrences underscored the importance of careful, feature-based scrutiny in analysis of source photographs, the lack of precise dating proved an obstacle in pinpointing suitable supporting sources in some cases, which may have otherwise helped further clarify the subjects depicted. This phenomenon emphasizes the value implicit in project-based partnerships which interface cultural landscape practitioners with experienced historians alongside design-oriented professional skillsets.

7.3 Summary and Conclusion

Research conducted during this study was predicated on identifying lasting spatial (and visible) connections between selected historical views and their physical settings. As each view establishes a distinctive axis through space as well as points in time, it is reasonable to conclude that source and rephotograph together delineate a unique type of viewshed or informational transect in the landscape—conceptualized more as a widening wedge (or vector) than line. One or more transects may be established relative to viewsheds in cultural landscape sites, specifically oriented with respect to distinct reference features (and their shared spatial configurations). In turn, each transect may orient an open-ended photo-documentation regime,

[222] No field notes are known to exist regarding these plates. Latter-day efforts to curate basic subject descriptions for virtual gallery display remains circumspect.

anchored within a precise monitoring station, to better systematize ongoing assessment of changing conditions. The concept of a rephotographic transect also underscores the value of transparency in documenting the camera station (view location) itself, which can be logged and digitized in a geospatial information environment, rather than repeatedly relocating the source camera station solely by visual means.

Figure 7-10. Source photograph for S-02, identified as the Saanaaheit Pole and House Posts. Initial attempts to date the image bookended a range of 1906-1929, until details of sailors' cap titles, visible as "USS Patterson," could be cross-referenced with maritime records, narrowing the range to c.1908-1918.[223] (NPS SITK 25775)

[223] Gordon Smith, "USC&GSS Carlile P. Patterson," electronic transcription of *Log Books of the U.S. Coast & Geodetic Survey, 19th and 20th Centuries,* updated January 24, 2018, https://www.naval-history.net/OW-US/Patterson/USCGSS_Patterson.htm (accessed March 7, 2019).

In applied practice, recording geospatial data specific to the camera station itself (in contrast to landscape features alone) is an indispensable component in documenting and scrutinizing viewsheds as a component of cultural landscapes. Citing specific location and orientation speaks to an ethic of contextualizing images amid changing physical surroundings—including changes that screen or occlude the viewshed—in lieu of arbitrary choice or guesswork compounded over the passage of time.[224] Use of *specific* reference features underpins the degree of analytical clarity which can be expected in re-occupying historical source views, as the methodological core of this study has shown. This technique does not represent a dramatic departure from the established NPS cultural landscape framework. Rather, its development constitutes a practical innovation to expand and systematize how landscape characteristics can be applied, for the analysis of existing photographic records as well as the cultural landscape itself.

Technical accuracy is an implicit component of effective rephotographic fieldwork, as this work has demonstrated. Successful location and orientation of camera station positions enable more reliable comparisons than do generalized, informal, or casual views, which are often created without regard to alignment in particular reference features in the landscape and are not reliably repeatable. This is particularly the case where viewshed comparisons reference depictions of small-scale and structural detail, rather than topographic form or plant massing. Overall, spatial awareness and accuracy are as significant a factor in developing useful rephotographic comparisons as is depiction of the subject features themselves. To achieve visually compelling rephotographic pairs without recording geographic and orientation position is to develop (or perpetuate) an incomplete record. Selected source analyses affirm this in a variety of ways, reflecting the limitations inherent in archival photographs used without regard to

[224] While GPS-linked tools and applications are ever more becoming part and parcel of photographic workflow, the typical margin of error affecting many guarantees the need for comparison.

spatial context or orientation. This finding is transferable among viewshed sites within the Sitka study area, and likely beyond. Future investigations may seek to extent this transferability among cultural landscapes in other regions and environs.

Practical limits on time, resources, and technical skill are implicit for a variety of cultural landscape fieldwork scenarios. In this context, dissertation research underscores several recommendations for engaging rephotographic techniques in professional practice, as well as academic endeavors. First and foremost, cultural landscape characteristics can and should be utilized as a systematic means of viewing source photographs, whether from an historical archive or a more recent snapshot; the basic lesson here is that characteristic-guided analysis begins at the outset of work with archival photographs, well in advance of actual fieldwork. Recognizing this concept represents a possible gain in efficiency, as well as a source of rigor in identifying and placing features historically. General attempts to identify or map where and how source photographs were created, again undertaken well before setting foot onsite, are also recommended as a basic, efficient means of interfacing (and perhaps contrasting) historical views and existing cultural landscape features. In some cases, especially in the context of close-up, detailed views (such as examples previously discussed from Redwood National Park), it may be advisable to weigh whether further rephotographic efforts are an applicable or viable use of project resources.

For source plates (or negatives) measuring within printable dimensions, the production and use of full-scale transparencies are also a useful tool in engaging with historical viewsheds in the field, whether for checking camera position, or making expedient comparisons among site features in real time. These require relatively modest technical prowess, provided the user heeds the principle that accurate image scale is directly linked with actual, physical distance among

cultural landscape features onsite.[225] This type of media is also easily annotated, and serves as a sensible alternative or fail-safe for paper or electronic media in the field.

The proliferation of GPS-linked devices notwithstanding, practitioners should further weigh the merits of taking and documenting compass bearings firsthand, based on camera lens orientation—a technique that serves as a strategic investment in mapping or delineating documentation camera stations, as well as future use in reconstructing or reoccupying viewsheds. Planning and implementing fieldwork routes through, within, and even around a site with consideration of how the resulting photographic viewsheds will shape resulting records will also undoubtedly have merit and are doubtless a topic for their own investigation. Together, such techniques reinforce a preservation ethic of heightened spatial awareness in the use of photo-documentation tools, anticipating a possible dialogue with future documentation needs onsite, perhaps including sustained rephotographic monitoring.

Findings also include the recognition that rephotographic imaging in cultural landscape sites can be achieved "blindly." In this scenario, where much of the viewshed has been blocked or otherwise obstructed by vegetation growth (e.g. plant succession), regrading, development, or other events and trends intervening in the camera station, rephotographic imaging and mapping nonetheless furnishes repeatable data points for continued, future applications. Occluded camera stations should, as a matter of course, should not preclude the use of documentation photographs and mapping recorded from a nearby (albeit varied) position to capture landscape features within the historic viewshed, provided this near-rephotographic information is clearly distinguished to avoid confusion. The resulting occluded photographic views are less useful as discrete reference points in space than when situated within rephotographic pairs or series; instead, these views

[225] Experienced users will also consider the wisdom in using transparencies together with a rigid frame, in order to mitigate the effects of wind, static cling, and even fingerprints, as well as keeping sheets separated in shortage.

showcase heightened contrast in fore- or mid-ground conditions, perhaps as stark, emergent opportunities for treatment. In the case of viewsheds selected within the Orthodox cemetery, rephotographic pairs reveal a more localized, historically oriented sense of where and how shrub- and canopy-level conditions cover might be modified through management interventions. In this sense, occluded views are less an insurmountable obstacle than a starkly demarcated point of comparison in time.

This point not only bears out the possibility of useful documentation under visually adverse conditions, but also, equally importantly, how the resulting pairings may comprise a fulcrum for decision-making through heightened contrast between or among views revealing dramatic change. Here, rigorous comparisons rely heavily on photo repetition shown to be systematically delineated in location and orientation, particularly so when the paired images appear to have little in common. Such pairings harness what historian Timothy Davis has called the "evocative power of creative photography" as a valuable tool for landscape architecture, as utilized to confront technical challenges of landscape documentation through historical sources.[226] Creative problem-solving using rephotographic techniques also serves to underscore a valuable role for photo-visual analysis skills among landscape-oriented professionals, particularly where graphic modes of communication may serve as a shared professional language, helping interconnect multiple disciplines and methodologies. Such photo applications range well beyond the celebration of photogenic scenery, symbolic representation, or photo-realistic modelling, instead deepening possibilities for effective and rigorous documentation and

[226] Tim Davis, "Photography and Landscape Studies," *Landscape Journal* 8, no. 1 (Spring 1989): 5. https://www.jstor.org/stable/43323996.

interdisciplinary communication in future analysis and treatment of cultural landscape viewsheds.

This study has emphasized accuracy in photographic repetition as a means of fostering transparent, transferrable practice over time. Yet an exacting degree of precision should not be mistaken as an exclusive prerequisite for practitioners wishing to more effectively utilize archival photographs in work with cultural landscape sites. Instead, the work affirms possible value in deepening the use of a systematic framework into photographic analysis, as this study has demonstrated vis-à-vis the existing NPS Cultural Landscape framework characteristics in Chapter 2. The typological categories of the framework correspond well with the subject matter depicted in site-specific photographs, making for a suitable starting point in distilling among or delineating recorded elements of landform, configuration, and detail. Each framework characteristic can be adopted, in turn, as a systematic means of sorting among reference points within a fixed field of view. As such, this technique affords the practitioner a set of focal points for more carefully scrutinizing (and recognizing) the contents of many photographic sources—as well as a variety of possible sequences and visual scales. As originally developed for holistic, overarching use in organizing firsthand observation of a three-dimensional landscape, the same framework categories can and should also serve as a systematic lens for the use of historical and contemporary photographic sources in distilling and communicating treatment planning and design recommendations. Applying characteristic types to the contents of primary source images, rather than physical features alone, points toward the possibility of increased rigor in modes of feature description and assessment, as well as in the preparation of reference materials for fieldwork and related ground-truthing procedures (Fig. 7-11; see also Appendix D).

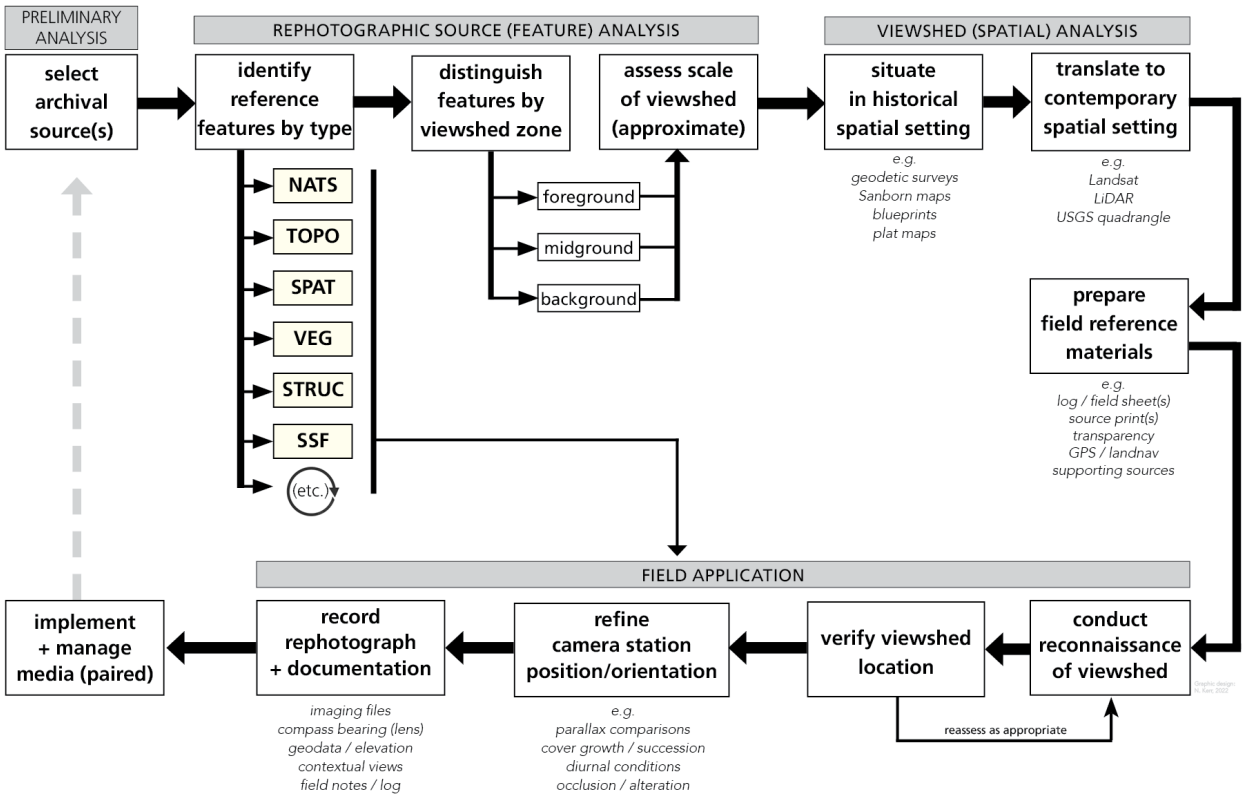


Figure 7-11. Flowchart illustrating revised summary of framework-linked rephotographic approach.

Situating this investigation with respect to cultural landscape inquiry, however, also encourages practitioners to acknowledge limits imposed by photographic vision on historical awareness of a site. A view reframed, even one well contextualized and situated amid supporting knowledge, is not an analog for the actual site, no matter lens specifications or sensor format. Nor can such views fully and independently encompass an authoritative statement of that place's lasting significance. Instead, this research urges practitioners to consider rephotographic opportunities as invitations to scrutinize photographic sources as informationally rich components of a living, evolving record with a bearing on the site itself, warts and all.

Historical source views encapsulate choices already made, consciously or otherwise, by previous photographers. Adopting these selective sources for rephotographic study urges us to consider the implications of their location, orientation and timing, if not their own unique

motivations. What aspects of the site might these views highlight or exclude? Such questions demand looking farther afield, including beyond visible features. Cultural landscape researchers should approach photographic repetition with wariness toward blindly adopting previous viewsheds, instead seeking to better understand *how* source images were generated and utilized. In doing so, practitioners enhance a capacity to question, consider, and refine the guiding record of future site stewardship.

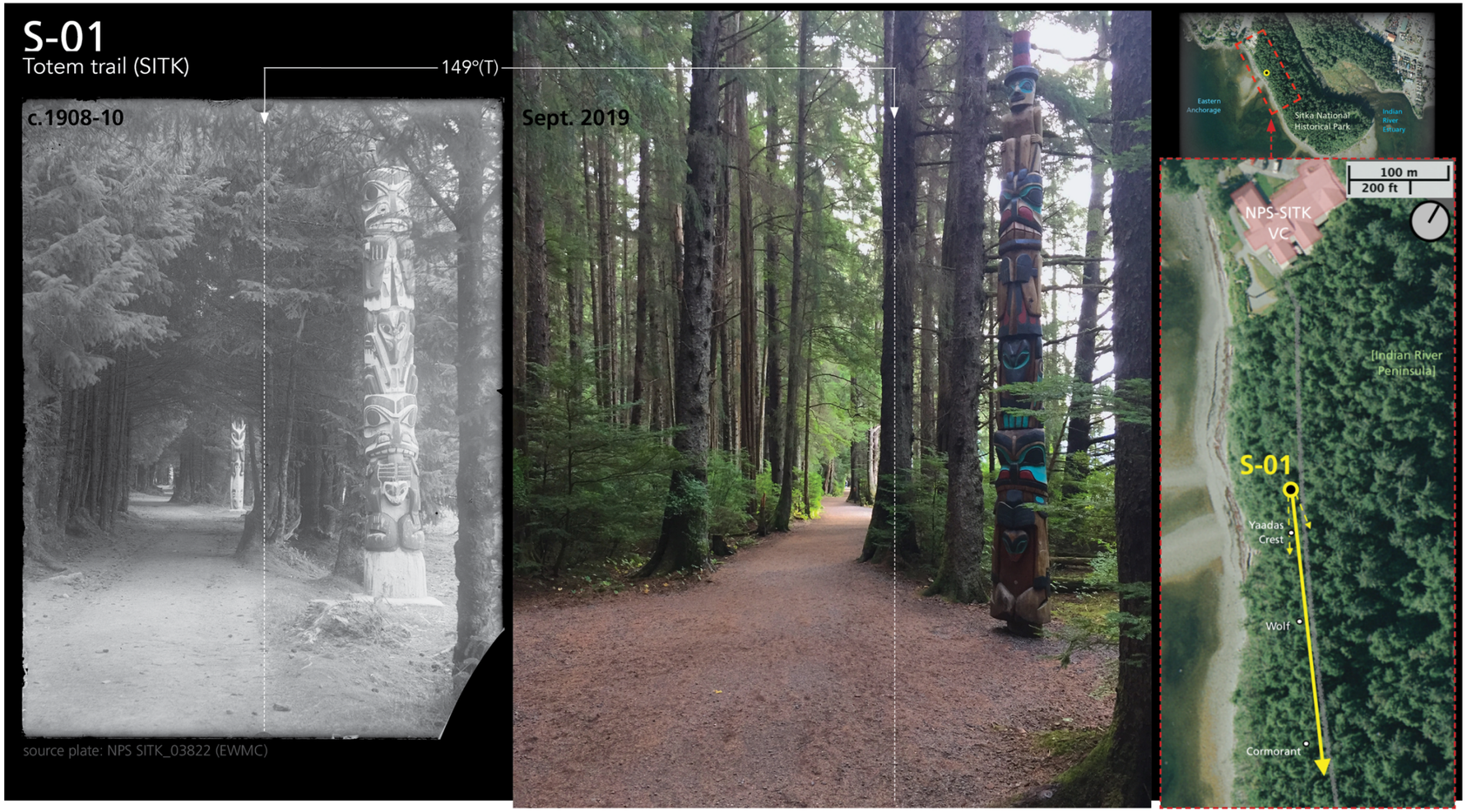
In addition to the specific findings, this study fundamentally underscores a key function and purpose of cultural landscape documentation within preservation practice: the iterative maintenance of baseline visual knowledge for dynamic landscapes. More closely orienting elements visible in these sources with extant features fosters continuity between historical analysis and contemporary preservation methods. To this end, this study further validates an interface of viable rephotographic research techniques with the established framework for periodic cultural landscape site documentation. The framework itself is noted for strengths in facilitating field-based observation and discovery, yet dissertation research also demonstrates an opportunity for precision in its application to source records as well as the site itself. This mutual reinforcement shows a valuable synergy, one meriting further investigation.

Cultural landscapes constitute a viable avenue for rephotographic research and practice. The distinct interchange inferred between archival research and field documentation practice, moreover, invites a necessary and ongoing reframing of numerous archival photographic holdings in a variety of local, state, and national repositories. Through the rephotographic lens, we not only glimpse a brief, past moment, but present an opportunity to bring our dynamic landscapes into sharper focus. Guided by cultural landscape characteristics, we may revisit ever-changing viewsheds with the prospect of further discovery.

APPENDIX A: SOURCE SITE ASSESSMENT LOG

Site Code	NPS-SITK Catalog	Subject Informal Name	Lat-Long (Recorded)	GPS error margin	Elevation (AMSL)	Sensor elevation	Lat-Long (Corrected)	Rephoto Aspect (T)	Rephoto Station Parcel	Rephoto Station Ownership	Rephoto Station Street Address	Rephoto Date	Rephoto Time (AKDT)	Rephoto File/sequence [NPK_####.JPG]
S-01	3822	Yaadaas Crest / Totem Trail	57°2'51"N 135°19'5"W	±32ft	18ft	63in		149°S-SE	Federal	NPS	[Lincoln St. & Metlakatla St. vicinity]	9/9/2019	12:52PM	0154-0158
S-02	25775	Saanaheit Pole / House Posts	57°2'56"N 135°19'9"W	±16ft	(-4ft)	49in	57°2'56.41"N 135°19'9.28"W	36°NE	Federal	NPS	139163 Metlakatla St.	9/9/2019	3:17PM	0180-0192
S-03	25496	Lower Indian River Bridge	57°2'57"N 135°19'0"W	±32ft	31ft	(0in)	57°2'57.65"N 135°19'0.71"W	50°NE	Federal	NPS	[Lincoln St. & Metlakatla St. vicinity]	9/9/2019	2:20PM	0161-0170
S-04	25925	Upper Indian River Bridge	57°4'24"N 135°17'31"W	±16	188ft	~60in	57°4'23.9"N 135°17'32.3"W	357°N	Federal	USFS	n/a	9/13/2019	12:53PM	9684-9691
S-05	25603	Sitka National Cemetery	57°3'15"N 135°19'24"W	±16ft	80ft	n/d	57°3'15.74"N 135°19'24.51"W	316°NW	Federal	U.S. Dept. of Veterans Affairs (VA)	803 Sawmill Creek Rd.	9/10/2019	1:45PM	0298-0304
S-06	25391	SMROC view from Cathedral Way	57°3'1"N 135°20'6"W	±16ft	43ft	59in	57°3'1.73"N 135°20'6.98"W	189°S	Municipal	City and Borough of Sitka	107 Cathedral Way	9/11/2019	9:56AM	0400-0401
S-07	25780	Sheldon Jackson quad oblique	57°3'4"N 135°19'28"W	±32ft	37ft	60in	57°3'4.76"N 135°19'28.61"W	91°E	Private	Youth Advocates of Sitka, Inc.	805 Lincoln St.	9/10/2019	6:26PM	0354-0372
S-08	26390	Sheldon Jackson quad panorama	57°3'3"N 135°19'25"W	±16ft	29-30ft	59in	57°3'3.46"N 135°19'25.42"W	30°NE	Private	Alaska Arts Southeast, Inc.	801 Lincoln St.	9/10/2019	10:33AM	0248-0259

Site Code	NPS-SITK Catalog	Subject Informal Name	Lat-Long (Recorded)	GPS error margin	Elevation (AMSL)	Sensor elevation	Lat-Long (Corrected)	Rephoto Aspect (T)	Rephoto Station Parcel	Rephoto Station Ownership	Rephoto Station Street Address	Rephoto Date	Rephoto Time (AKDT)	Rephoto File/sequence [NPK_####.JPG]
S-09	26131	Orthodox Cemetery view toward Blockhouse site	57°3'7"N 135°20'17"W	±32ft	39ft	39in	57°3'3.78"N 135°20'21.05"W	162°S-SE	Private (public access)	Diocese of Sitka and Alaska, Orthodox Church in America, Inc.	215 Marine St.	9/12/2019	3:21PM	0615-0619
S-10	26289	Orthodox Cemetery view W-NW toward Edgecumbe	57°3'10"N 135°20'17"W	±32ft	92ft	54in	57°3'10.36"N 135°20'18.06"W	295°NW	Private (public access)	Diocese of Sitka and Alaska, Orthodox Church in America, Inc.	215 Marine St.	9/12/2019	2:25PM	0599-0601
S-11	25926	Steps to reconstructed blockhouse site	57°3'2"N 135°20'17"W	±16ft	30ft	63in	57°3'2.36"N 135°20'17.28W	298°NW	Municipal	City and Borough of Sitka	[NW corner of Marine St. & Kaagwaantaan St.]	9/12/2019	11:54AM	0524-0527
S-12	25574	Booth Fisheries shed / piers / canoe (post-1913)	[GPS log error - see corrected]	±16ft	18ft	66in	57°2'57.69"N 135°20'21.47"W	291°NW	State	State of Alaska	197 Katlian Ave.	9/12/2019	5:27PM	0669-06773
S-13	25793	Crescent Harbor (Bishop's House, Episcopal Church)	57°3'2"N 135°19'56"W	±16ft	15ft	82in	57°3'2.59"N 135°19'56.67"W	60°NE	Municipal	City and Borough of Sitka	330 Harbor Dr.	9/11/2019	9:29AM	0373-0380
S-14	26127	Lincoln St. axis, view NE toward SMROC / parade ground	57°2'56"N 135°20'22"W	±16ft	12ft	71in	57°2'56.13"N 135°20'23.24"W	45°NE	Private	Harbor Enterprises, Inc. [PetroMarine tenant]	1 Lincoln St.	9/11/2019	11:26AM	0406-0409; 0416; 0432-0433
S-15	25819	W.P. Mills House	57°2'54"N 135°20'10"W	±16ft	23ft	6in	57°2'54.13"N 135°20'10.42"W	98°E	State	Alaska DOT	[embankment S side of F-99/Harbor Dr. alignment, E of Baranoff historic site]	9/12/2019	4:43PM	0640-0652



Rephotographic camera station:
57°2’51”N 135°19’5”W

Rephotographic bearing: 149°S-SE(T)

Reference features: NATS (mature spruce); TOPO (R midground slope); CIRC (trail alignment, width, contour); SSF (Yaadas Crest corner pole/first twin, footing, Wolf pole, Cormorant mortuary column); VEG (spruce basal position); VIEW (enclosed viewshed assoc. with pre-war “Lover’s Lane” trail)

Rephotography field notes: Camera station estimated ~360ft S-SE of SITK VC (W edge of trail segment along Eastern Anchorage).

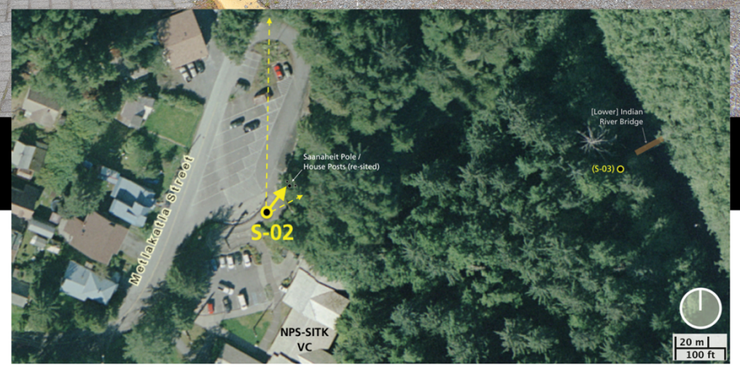
Elevation Overall change in canopy height and understory density apparent (daylighting aspect on shore side). 3x poles now sited further toward shoreline: combination of width/alignment changes in trail, spruce basal size, Poles have been *re-carved/oriented* and re-sited (narrowed, detail cannot be used for rephoto reference; masonry plinth now missing from Yaadas base)--reflects dynamic CRM/HP response to CL signif, rather than features permanently fixed in space. Trail shoulder is more apparent with contrast between trail surface composition and adjoining beach slope; wagon tracks visible in source (route now limited to pedestrian use). Widening of trail apparent in foreground is the result of more recent connector trail segment constructed within loop system.

S-02

Saanaheit Pole/House Posts (SITK)

source plate: NPS SITK_25775 (EWMC)

36°(T)



Rephotographic camera station: 57°2’56.41”N, 135°19’9.28”W

Rephotographic bearing: 36°NE(T)

Reference features: NATS (mature spruce); VEG (foreground cover); SPAT (cleared/compacted area); SSF (house/corner posts)

Rephotography field notes: Source date based on sailor’s cap tally (i.e. USS Patterson), informing comparison with park surveys and pole documented locations. Redevelopment has altered sense of enclosure, while posts have been reconfigured in space. Pole now significantly more tapered, accentuating continued carving traditions. Ground cover similar immediately surrounding pole, while deerheart (*Maianthemum dilatatum*) and shrub have increased understory density behind (N). Curvilinear walkway, foreground L, intersects loop trailhead and Metlaka St. parking. 3:11-3:15PM.

S-03

[Lower] Indian River Bridge (SITK)

50°(T)

source plate: NPS SITK_25496 (EWMC)

Rephotographic camera station:
57°2’57.65”N, 135°19’0.71”W

Rephotographic bearing: 50°NE(T)

Reference features: NATS (Kaasda Héen/Indian River channel, Verstovia N shoulder); TOPO (headwalls/approach grade and trail surfaces); CIRC (path/span alignment); STRUC (span, footings, headwalls); SPAT/VEG (spruce cluster, bole detail, clearing at crossing)

Rephotography field notes: Camera station located on west bank of Indian River, Anchorage), confirmed through topo comparison and basal height of spruce (also compared w/ 227°bearing +15°tilt from W bank). Supporting research identified several successive bridges here during EWM period (replacements for 1884/88 footbridge site); view depicts the nearly-complete J.C. Hayes/ARC-funded span, possibly a casualty of 1942 flood event. Forms for path bed at L midground, on grade likely scoured by recent flood. E bank down-wind of salmon carcasses--strong odor. Increased height in overstory now screens background (Verstovia slope form), required compass and contour comparison. Shrub layer has enclosed path alignments on both banks. Recent bridge/approach rehab (replace) apparent, alignment intact. A succession of 1940s severe flood events have noticably affected historical grade on W bank (source foreground, compared with NPS aerials), on which NPS “Totem Trail” loop has been engineered. 2:20PM.

S-04

[Upper Indian River Bridge] Tongass NF

Rephotographic camera station: 57°4’23.9”N, 135°17’32.3”W

Rephotographic bearing: 357°N(T)

Reference features: NATS (Middle Sister S face, IR channel, channel basalt features); STRUC (bridge span); CIRC (bridge alignment); VIEW (N viewshed upriver into Baranof)

Rephotography field notes: Early conjecture about actual historical bridge loc’n: three prospective stations scouted from river fork N to falls (cross-ref’d topo surveys with Larsen landmarks). Series of 1940s flood events appear to have altered bank and depth/flow, plus known channel migration (aerial sources). Accurate elevation not possible due to channel depth and strong current (too deep for tripod; foreground features submerged). Selected boulder features visible above/below surface to establish position. S slope of Middle Sister visible from bridge site upriver, but occluded by W bank canopy. Pos’n roughly logged via Offline Topo/Solocator. 4.5mi distance to reach/compare stations in moderate to heavy rain, cleared during final leg out.

S-05

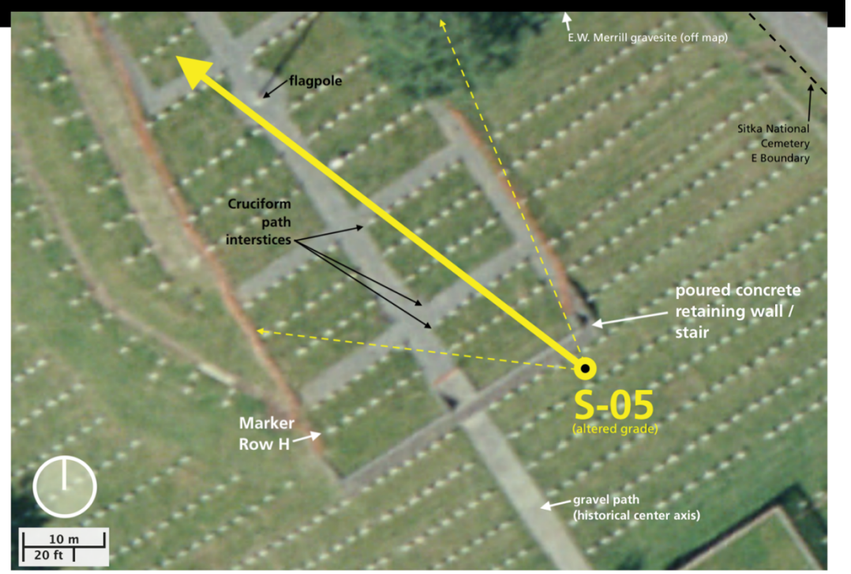
Sitka National Cemetery

Rephotographic camera station: 57°3’15.74”N, 135°19’24.51”W

Rephotographic bearing: 316°NW(T)

Reference features: NATS/TOPO (Harbor Mtn W slope, midground hilltop, regrading); CIRC/SPAT (cruciform path construction); SSF (U.S. military marker forms/legible inscriptions)

Rephotography field notes: Camera station identified based on parallax relationship of markers and path features, in conjunction with overlapping contours . Supporting research (VA burial registry) confirmed Rows H-I midground. Postwar site planning/redesign has altered foreground slope with hillside cut and retaining wall: actual camera station exists in a void above existing grade (roughly between Morrisey/Hallock burial plots). Soil settling and site maintenance (resetting markers) show alteration to source marker row alignment southward in foreground--consistent w/ military/VA land mgmt worldview (i.e. sense of order); basic path alignment/dimensions extant. Succession in cover apparent near W/N parcel border. Postwar flagpole placed at hill crest. Elev~80’+SL, 70” tripod (plumb), +2°tilt.



S-06

St. Michael's Cathedral, Sitka

189°(T)

c.1910

Sept. 2019

Rephotographic camera station: 57°3'1.73"N, 135°20'6.98"W

Rephotographic bearing: 189°S-SW(T)

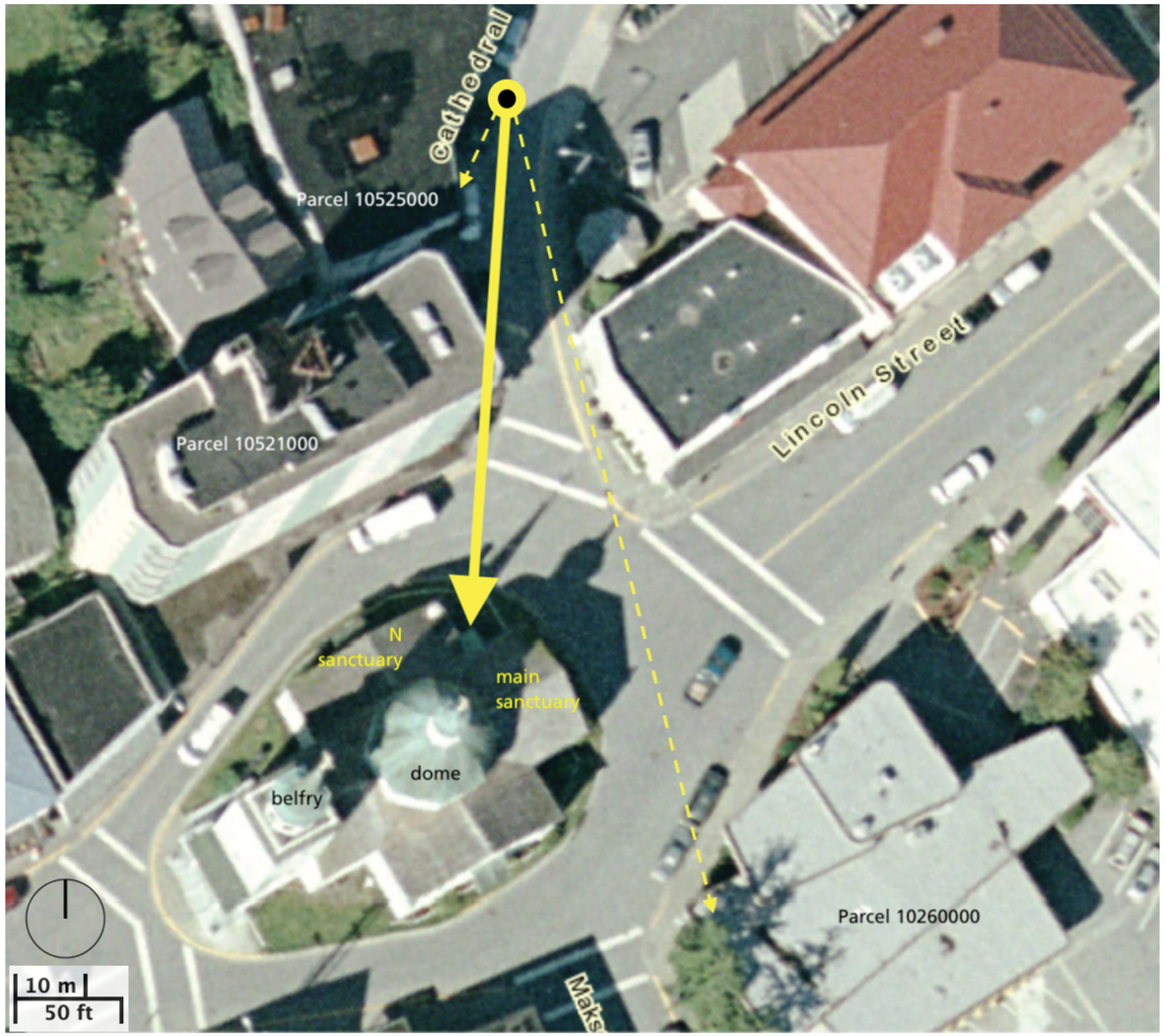
Reference features:
NATS (coast); CIRC (Kostrometinoff street/walkway alignment); STRC (cathedral cupola / Main+North sanctuaries / heater room); SSF (picket fencing, fire bell)

Rephotography field notes:
Rotate +0.25°, ~27'+SL. HABS AK-17/1913 Sanborn/City parcel 10521000. Post-1966 reconstruction enables triangulation of cruciform plan, massing, and dome. W side occluded by apartment massing now on foreground lot; sidewalk/setback have replaced fencing, following lot alignment. Note cypresses at corners of main sanctuary, along with bed plantings and herbaceous ground cover within municipal curb around cathedral roundabout. Fire bell no longer extant (L foreground).

[viewshed map: following page]

S-06

St. Michael's Cathedral, Sitka



S-07

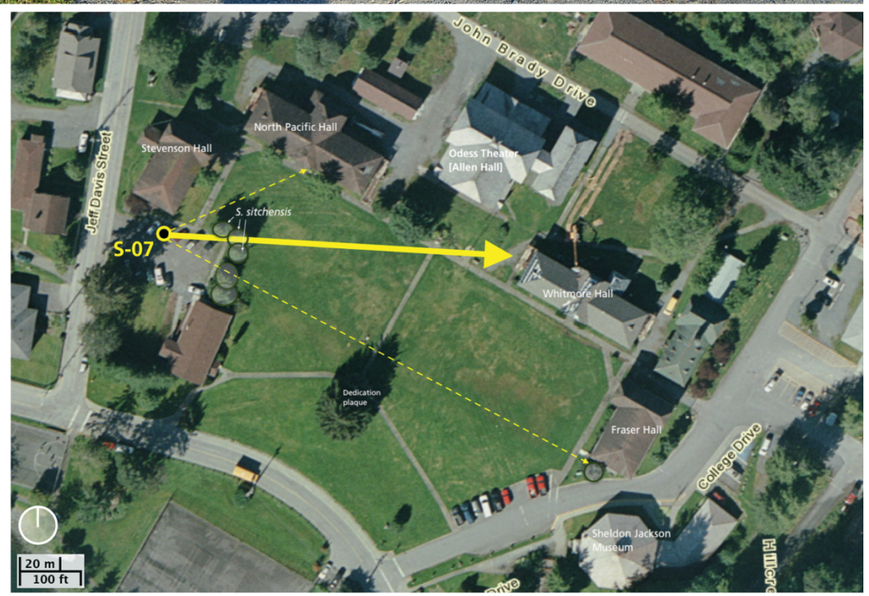
Sheldon Jackson School quadrangle (oblique)

Rephotographic camera station:
57°3’4.76”N, 135°19’28.61”W

Rephotographic bearing:
91°E(T)

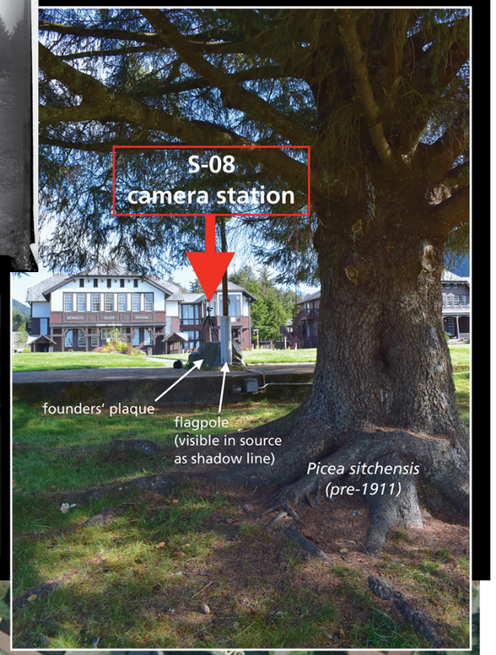
Reference features:
NATS (Verstovia S face, conifers); STRUC/SPAT (N.Pacific/Allen/Whitmore/ Fraser Halls--alignment/CDFs, Laundry chimney); TOPO (hill slope and aspect, disturbed ground cover); CIRC (quad walkways/alignments)

Rephotography field notes:
Camera station identified in gravel lot near SE corner of Stevenson Hall, not accessible during morning due to parked vehicles. Returned post-business hours (6:10-27PM); Verstovia slope + roof horizon lines used with spatial organization of quad layout. 4x mature Sitka Mtn Ash (*Sorbus sitchensis*) canopy at mid-ground now screens viewshed, including Allen Hall forecourt plantings. c.1910-11 boardwalk alignment appears to have shifted further west with concrete paving--partially mirrors orthagonal/symmetrical plan; existing material composition suggests pre-war. Rehab of Bldg. ‘103’ [Stevenson] underway (only SE corner of safety fencing visible in viewshed).



S-08

Sheldon Jackson School quadrangle (panorama)

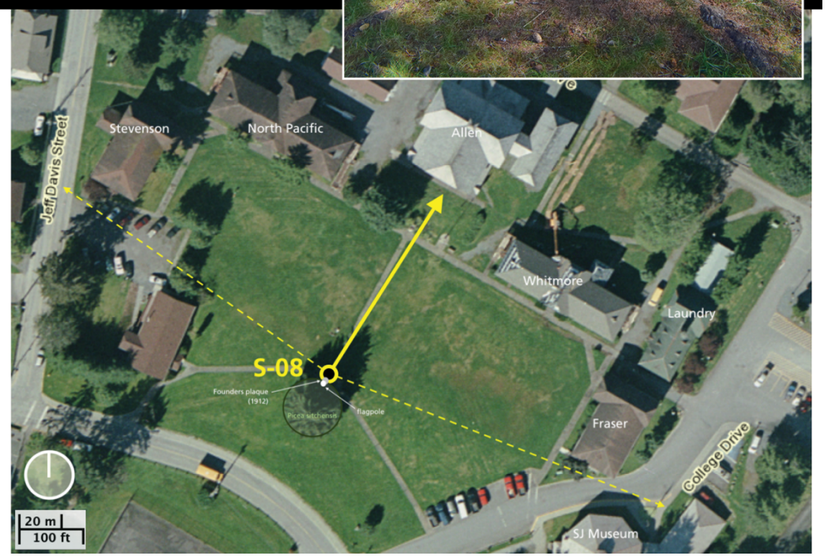


Rephotographic camera station: 57°3'3.46"N, 135°19'25.42"W

Rephotographic bearing: 30°N-NE(T)

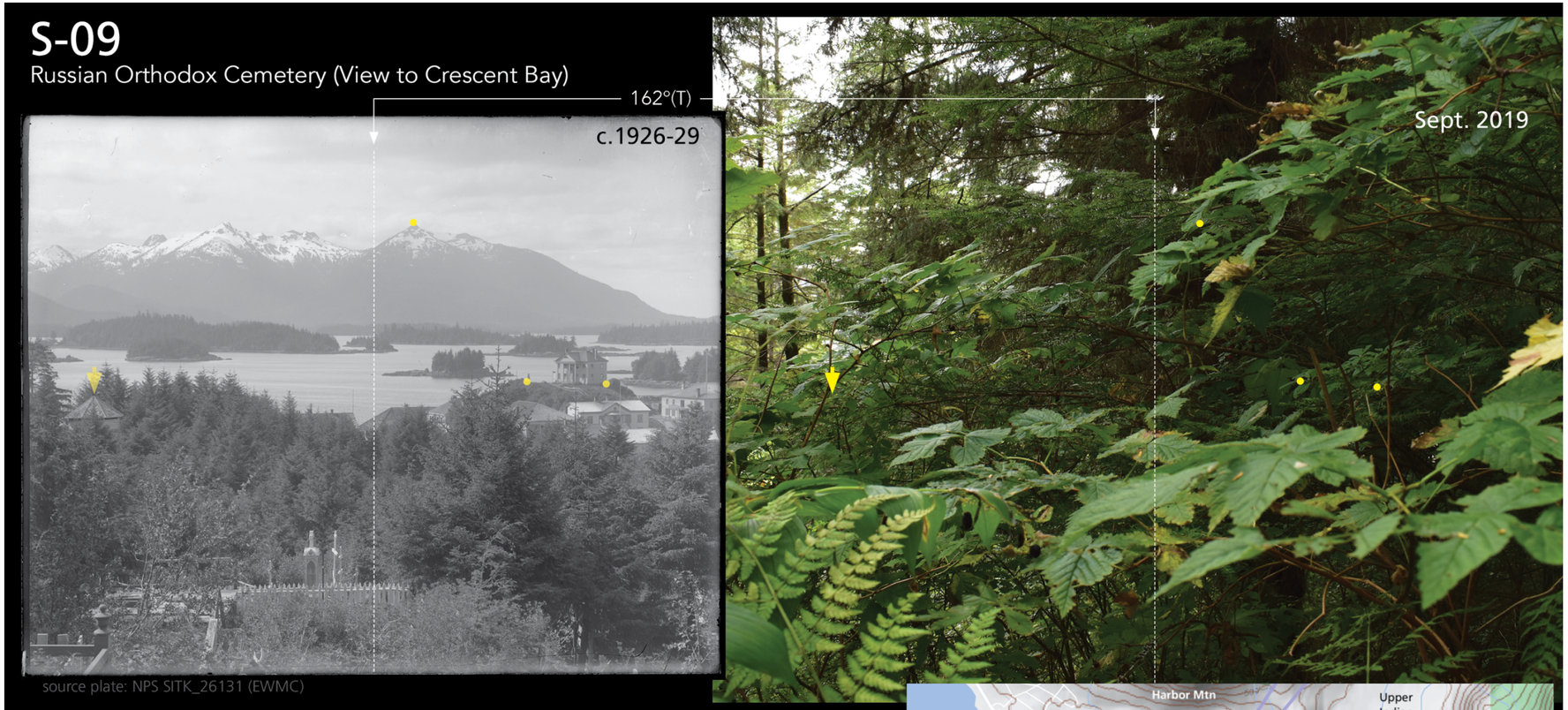
Reference features: NATS (Harbor Mtn/Verstovia/Sisters, conifers); STRUC/SPAT (1910-11--alignment/CDFs, Laundry chimney); TOPO (hill slope and aspect, disturbed ground cover); CIRC (quad walkways/alignments); SSF (flagpole, hydrant

Rephotography field notes: Camera station identified 201ftS-SW of Allen S elevation; first estimated ~2ft N of "Founders Plaque" (1912); sensor elevation 32'+SL. Source panorama not centered along Allen NE-SW axis. Shadow artifact from flagpole indicates late-season midday, relative position (feat itself not visible, heritage spruce canopy now screens pole--not reproducible. Orientation based on Harbor Mt/Verstovia/Sisters, ref.features from campus bldgs/paving. Wide-angle distortion present in rephoto frames. Quad circulation features do not reflect social trails (compaction) seen in source--suggests vehicle routes from Lincoln St., related to construction, rather than quad pedestrian planning. Hydrant no longer extant.



S-09

Russian Orthodox Cemetery (View to Crescent Bay)



Rephotographic camera station: 57°3’10.36”N, 135°20’18.06”W

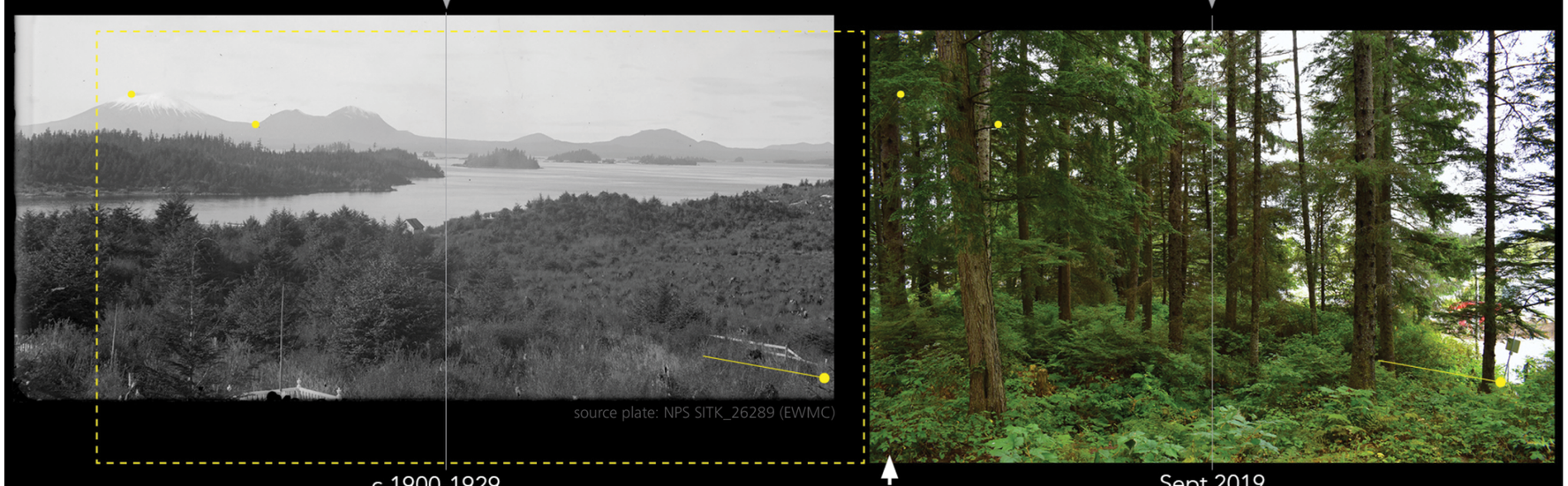
Rephotographic bearing: 162°S-SE(T)

Reference features:
NATS/TOPO (Pyramids peaks, Aleutski/Kutkan/Breast/Galankin Is., hilltop aspect); STRUC (Baranof Castle, reconstructed blockhouse, trading post, plot fences); SPAT (coastal alignment); TRAD (elevated ROC siting); SSF (monuments)

Rephotography field notes: Station intitially estimated based on parallax between NATS/TOPO/STRUC ref feats; field reconnaisance showed potential viewshed completely occluded in depth (felt “shrouded” by understory). W.Hemlock canopy appears to have grown up (DBH est~14-18’), exposure on S/W aspect may have influenced understory density; species observed include deerheart (*M. dilatatum*), ferns, and devil’s club (*E. horridus*) Lens orientation necessitated blind calculation based on identified positions/bearings for reconstructed Russian Blockhouse + Baranoff Castle (site); precise accuracy remains questionable. Source date range (c.1926-29) probable based on first reconstruction of blockhouse (1926), compared with 1966 replica (HABS AK-185-4). Elev~39’+SL, 39” tripod (plumb).

S-10

Russian Orthodox Cemetery
(View toward Kruzof Island)

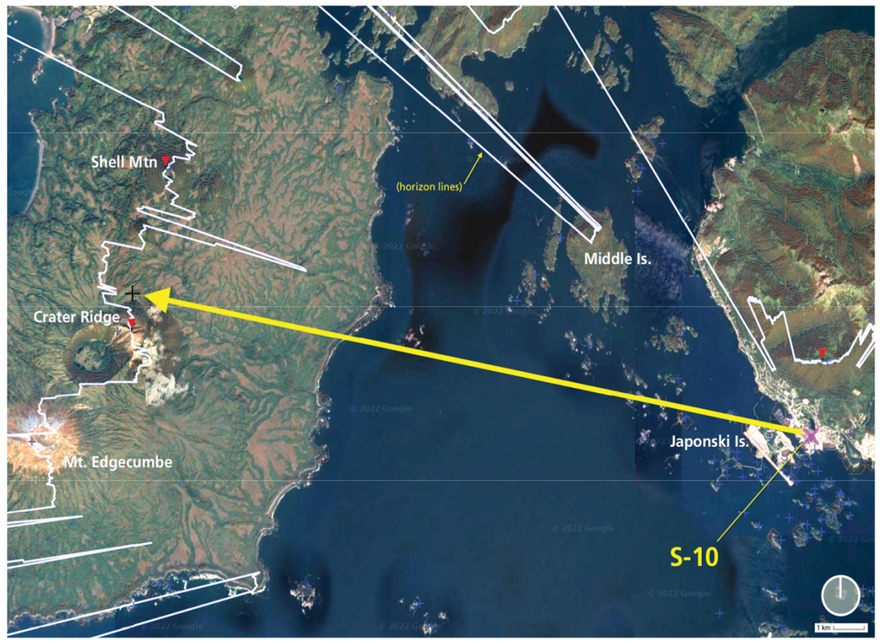


Rephotographic camera station: 57°3’10.36”N, 135°20’18.06”W

Rephotographic bearing: 295°W-NW(T)

Reference features: NATS/TOPO (Mt Edgecumbe, Crater Ridge, Shell Mtn, N Japonski Is., Kasiana Is., hilltop aspect); STRUC (fence segment, plot fences); SPAT (coastal alignment); TRAD (elevated ROC siting)

Rephotography field notes: Camera station first estimated based on parallax relationship of identified island points, in conjunction with foreground SSF. Field reconaissance confirmed ref features (e.g. Crater Ridge points, N Japonski coast forms) as visible near (but not at) prospective camera station: Opted to establish RP orientation blindly, using calculated bearings, due to canopy occlusion throughout cemetery interior. Spruce/Hemlock (canopy density higher S of station); understory includes devil’s club (*E. horridum*), W. brackenfern (*P. aqualinium*), swamp gentian (*G. douglasiana*). Source fence segment (R foregrnd) consistent with border alignment of cemetery at extant N entrance--chain-link has replaced rail. R midground now residential development NW of Erler/ Spruce Streets. Contrast between land cover in source and rephoto could illustrate CL-RP as mgmt ref. Attempt to compare full-scale transparency not successful, low ambient light. Elev~92’+SL, 54” tripod (plumb), -5°tilt.



S-11

Steps to shrine / gravesite / blockhouse site

source plate: NPS SITK_25926 (EWMC)

Rephotographic camera station:
57°3’2.36”N, 135°20’17.28W

Rephotographic bearing:
298°WNW(T)

Reference features:
CIRC (stair alignment); STRC/SPAT (shrine and memorial, picket massing and alignment); TOPO (hill slope and aspect, partially visible through steps and ground cover); VEG (ground plane and mature spruce).

Rephotography field notes:
Camera station identified near NW corner of Marine St. & Kaagwaantaan/ Seward St., municipal property. Archival caption indicating steps to Maksoutoff gravesite is likely incorrect (source ref features compared between several vantages at both sites); structure at R rear shelters shrine to Holy Trinity church site (1849-75) and St. Netsvetov memorial. Salmonberry (*R. spectabilis*) and devil’s club (*O. horridus*) have largely succeeded herbaceous ground covers (occluding foreground L), while masonry retaining wall appears to be post-EWM construction. Path flagstones replaced with poured concrete (with landing), suggests mid-20thC. construction type, shows similar overall alignment. Spruce visible near reconst.blockhouse site.

S-12

Booth warehouse (view NW)

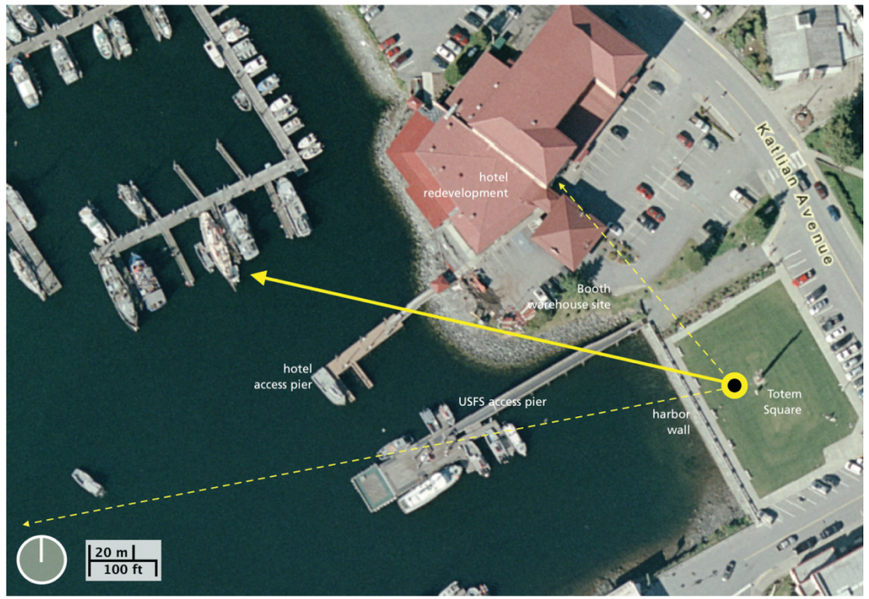
source plate: NPS SITK_25574 (EWMC)

Rephotographic camera station:
57°2’57.69”N, 135°20’21.47”W

Rephotographic bearing: 291°W-NW(T)

Reference features:
CIRC (harbor-front walkway alignment); STRC (pier alignment, warehouse location/footprint, harbor wall alignment); SPAT (park/parade ground/Totem Square, commercial frontage); TOPO (Japonski); SSF (Saanaheit war canoe, utility poles)

Rephotography field notes:
Rephoto rotated +0.25° from source; elevation ~66” (+13’ASL). Municipal sidewalk location and alignment nearly identical to historical social trail depicted in source mid-ground; warehouse building no longer extant, but harbor pier alignment nearly matches present-day USFS access pier adjoining redeveloped hotel and marina site (mid-ground, E side of viewshed). High-res transparency used for field reference. Comparisons with 1914 Sanborn and prewar topo surveys needed for prelim analysis in narrowing potential coastal locations. Shadow lines and foreground vegetation (possibly *Taraxacum sp.*?) suggest EWM plate photographed early summer/late morning. Reference SSF no longer extant.



S-13

Crescent Harbor (Bishop's House)

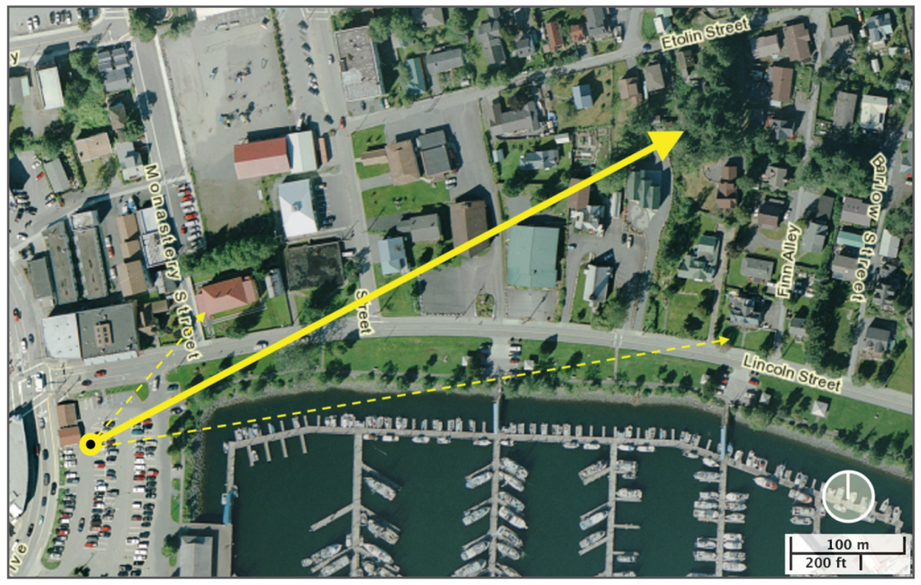
source plate: NPS SITK_25793 (EWMC)

Rephotographic camera station: 57°3'2.59"N, 135°19'56.67"W

Rephotographic bearing: 60°NE(T)

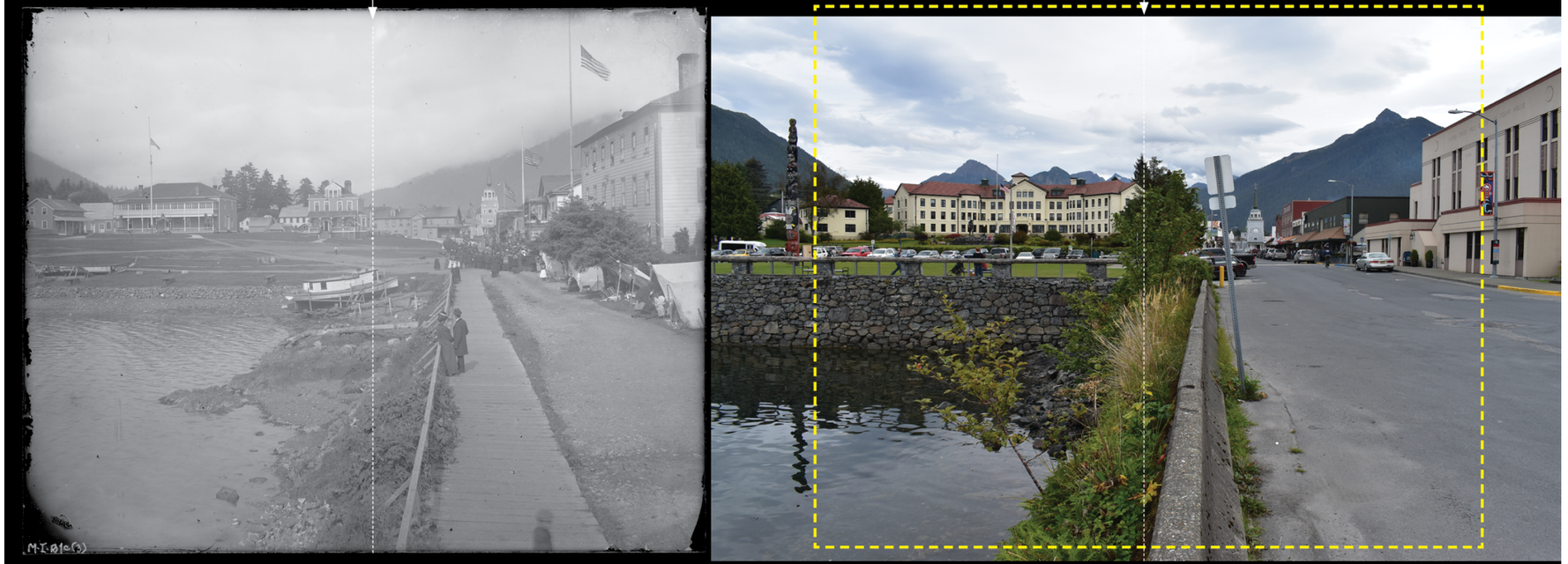
Reference features: NATS (Sisters peak, Vestovia W/N slopes, harbor shingle); TOPO (; STRUC (Bishop's House, See House, Episcopal church, Lincoln St. residences); CIRC (Lincoln St. curvilinear alignment); VEG (specimen spruce); SSF (utility poles); CWF (harbor wall/pilings)

Rephotography field notes: Source camera station elevation likely altered by municipal parking lot infill and grading (foreground rock features no longer visible at harbor edge); harbor frontage likewise occluded by harbor reclamation. Dolly position blocked by municipal restrooms. Basic viewshed identified based on historic structures (post-quem date determined via Sanborn/USC&GS surveys). Lincoln St. lanes widened N, reducing lot frontages (note fence alignments) and grade (bed/paving), along with height/clearance of utility poles/lines and "Sea Walk" public path to S. Specimen spruce (2x) visible in Russian Bishop's House yard; flagpole no longer extant. Various street trees (i.e. deciduous foliage) partially or fully screen structures east of Baranof St. (steeple visible). Spruce cover extant NE of St. Peter's (between SJS campus/Sawmill Crk Rd), largely intact. 15'ASL+82"tripod elevation.



S-14

Lincoln Street Axis (view E-NE)



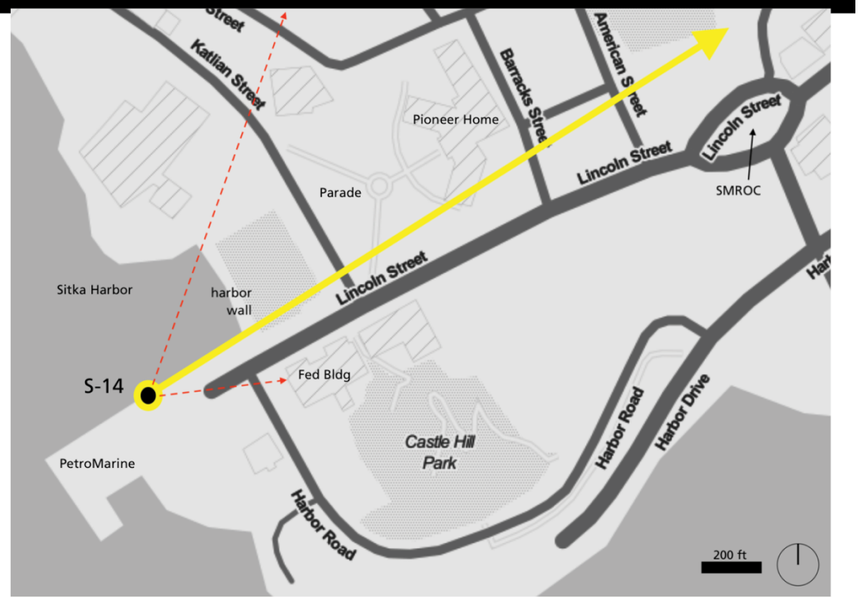
source plate: NPS SITK_26127 (EWMC)

Rephotographic camera station:
57°2’56”N, 135°20’10.4”W

Rephotographic bearing: 45°NE(T)

Reference features:
NATS (Verstovia N slope, Harbor Mtn S slope); CIRC (Lincoln St. alignment, Katlian St. walkways); SPAT (harbor, parade ground); STRUC (harbor walls, SMROC, storefronts / federal bldg.)

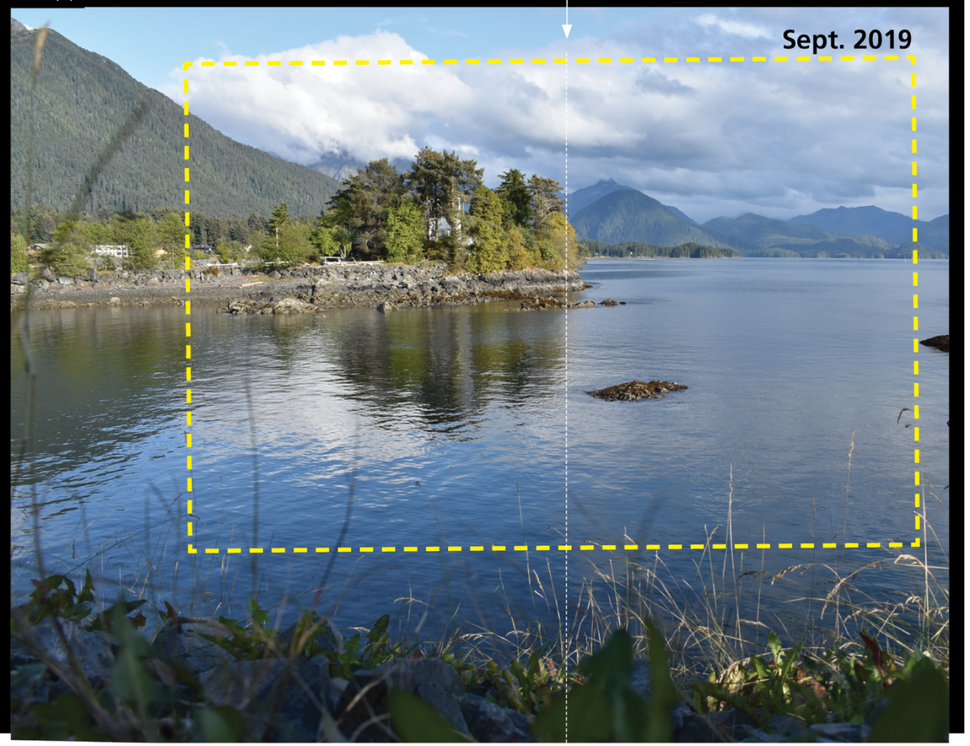
Rephotography notes:
Based on source shadow lines, foreground pedestrians, and parallax relationship of hotel roof and SMROC belfry cornice, rephoto elevation likely too low at existing grade; low cloud cover negates peaks as reference points. EWM source likely photographed from elevated platform (e.g. tower or wagon), i.e. ~3.5’+ higher. Location initially estimated on PetroMarine lot near harbor wall; confirmed near lot line, corrected several yards farther SW. Parade ground (basic SPAT/CLUS) still visible. Pioneer Home wing massing aligned to historical predecessor. Harbor walls similar in grade and alignment, no longer canted (STRC/TOPO), located farther east. Federal Bldg (former Govt. House site) shows altered massing depicted in right foreground, with street widened southward (deeper setbacks) and paved.



S-15

W.P. Mills House (Sitka Harbor / saltery site)

source plate: NPS SITK_25819 (EWMC)

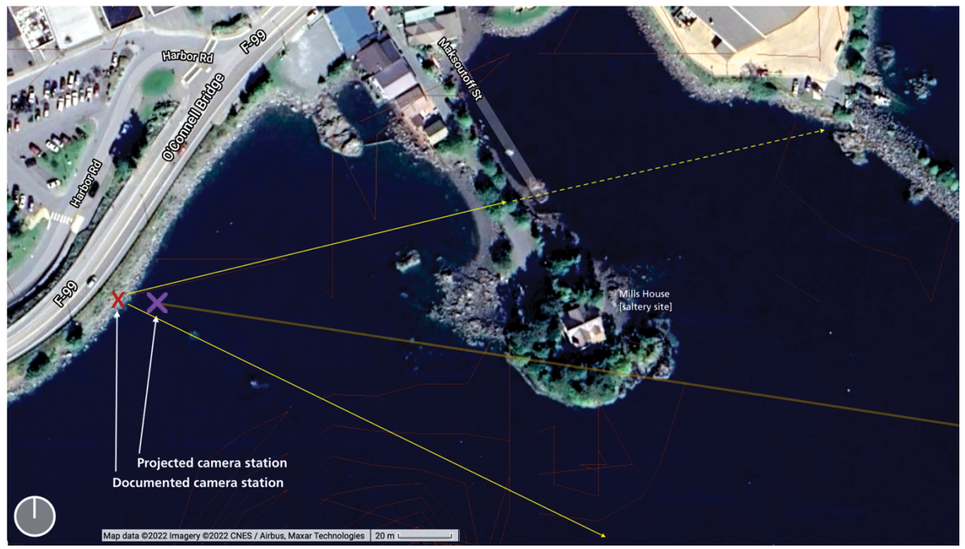


Rephotographic camera station:
57°2’54”N, 135°20’10” (see note)

Rephotographic bearing: 99°E-SE (T)

Reference features:
NATS (peak and alpine landforms/slope); TOPO (saltery island, mid-ground harbor rock formations, causeway); CIRC (causeway alignment/elements) VEG (conifer only); STRUC (arch. and causeway elements)

Rephotography Notes:
Correct elevation, tilt could not be accurately replicated, based on grade at harbor’s edge (result of civil engineering for 1971 bridge approach. Grade has been raised (~23’+SL); upper slope is too steep to occupy similar bearing, while lower glacis (riprap) limits feasibility of alternate approach by marine craft. Based on these observations, opted to position ~8-10’ upslope along bearing line. As a result, above views are not precisely aligned. -0.5° rotation.



APPENDIX C: CULTURAL LANDSCAPE INVENTORY LIST

The following table summarizes Cultural Landscape Inventory (CLI) records, revisions, and drafts informally surveyed as of 2016, relative to existing cultural landscape sites documented by National Park Service cultural resource specialists in the Pacific West Region (NPS-PWR).[227] Together, these records inform discussion included in Chapters 1-2, although inventory records for individual landscapes continue to be developed and updated as a matter of ongoing, applied research. The contents of CLIs listed cannot be reproduced in full here; much of this information is, however, a matter of public record.

CLI number	*Park code*	*CLI date*	*Cultural Landscape Inventory Name*	*Property Level*	*Condition Updated*	*Condition Assessed*
725543	BIHO	2008	Big Hole National Battlefield Site	Landscape	8/8/08	Good
975450	CABR	2009	Cabrillo National Monument Visitor Center Historic District	Landscape	1/14/09	Good
725078	CHIS	2005	Anacapa Island Light Station	Landscape	7/21/10	Good
725080	CHIS	2003	Caire-Gherini Ranch Historic District	Component Landscape	6/11/09	Fair
725083	CHIS	2002	Santa Rosa Island Ranching District	Landscape	8/29/08	Fair
725483	CHIS	2004	Santa Cruz Island Ranching District	Landscape	6/9/09	Fair

[227] The Pacific-West Region (PWR) has since been restructured from late 2018 as Unified Interior Regional Boundaries, now delineated largely by major watershed areas and as a response to growing administrative complexity within the U.S. Department of the Interior. PWR comprised much of Regions 9 (Columbia-Pacific Northwest), 10 (California-Great Basin), and 12 (Pacific Islands).

CLI number	*Park code*	*CLI date*	*Cultural Landscape Inventory Name*	*Property Level*	*Condition Updated*	*Condition Assessed*
725485	CHIS	2002	Rancho del Norte	Component Landscape	8/27/08	Fair
400004	CIRO	revised 2009	City of Rocks	Landscape	6/11/08	Fair
400006	CRLA	2001	The Watchman	Component Landscape	6/29/09	Fair
400007	CRLA	2004	Rim Village	Landscape	8/10/10	Fair
400008	CRLA	2013	Munson Valley Historic District	Landscape	8/3/12	Fair
400186	CRLA	2011	Rim Drive Historic District	Landscape	6/29/11	Fair
400189	CRLA	2001	Castle Crest Wildflower Trail	Landscape	8/26/08	Fair
400249	CRLA	2000	Superintendent's Residence - CRLA	Component Landscape	8/10/10	Fair
400250	DEVA	2005	Thomason/Barker Ranch	Landscape	8/25/09	Poor
725096	DEVA	2005	Scotty's Castle	Component Landscape	11/18/10	Fair
725097	DEVA	2005	Lower Vine Ranch	Component Landscape	7/21/10	Fair
725105	DEVA	2004	Cow Creek Historic District	Landscape	9/11/07	Fair
725106	DEVA		Warm Spring Canyon Gold and Talc Mining Historic District	Landscape	8/28/10	Fair
725107	DEVA		Ubehebe Historic Mining District	Landscape	8/18/10	Poor
725109	DEVA		Harrisburg Historic District	Landscape	8/18/10	Poor

CLI number	*Park code*	*CLI date*	*Cultural Landscape Inventory Name*	*Property Level*	*Condition Updated*	*Condition Assessed*
725113	DEVA	2010	Panamint City Historic District	Landscape	8/18/10	Poor
725114	DEVA		Queen of Sheba Mine Historic District	Landscape	8/18/10	Fair
725115	DEVA	2012	Bonnie Clare Road	Landscape	11/11/10	Fair
725116	DEVA	2010	Chloride Cliff Historic District	Landscape	8/18/10	Poor
725118	DEVA	2010	Greenwater Historic District	Landscape	8/18/10	Fair
725119	DEVA		Keane Wonder Mine Historic District	Landscape	8/18/10	Fair
975518	DEVA		Garibaldi Mine	Landscape	8/18/10	Fair
975530	DEVA	2010	Furnace Creek Visitor Center	Landscape	7/30/10	Good
975641	DEVA	2012	Strozzi Ranch	Landscape	4/10/11	Fair
725018	EUON	2003	Eugene O'Neill National Historic Site	Landscape	7/6/09	Good
400177	FOVA	2009	Fort Vancouver	Component Landscape	8/1/09	Good
400179	FOVA	2000	Vancouver Barracks/Parade Ground	Component Landscape	9/22/10	Good
975379	FOVA	2007	Park Headquarters	Component Landscape	9/28/07	Good
725240	GOGA	2004	Fort Mason Historic District	Landscape	9/18/08	Poor
725241	GOGA	2005	Alcatraz Island	Landscape	9/20/10	Fair
725243	GOGA	2005	Sutro historic district	Landscape	9/20/10	Fair
725249	GOGA	2004	Fort Baker	Component Landscape	9/17/08	Good

CLI number	*Park code*	*CLI date*	*Cultural Landscape Inventory Name*	*Property Level*	*Condition Updated*	*Condition Assessed*
725255	GOGA	2008	Ranch M (Golden Gate Dairy)	Landscape	8/20/08	Fair
725257	GOGA	2005	Point Bonita Historic District	Landscape	8/3/11	Fair
975275	GOGA	2006	U.S. Coast Guard Fort Point Station	Component Landscape	6/12/12	Good
975330	GOGA	2008	Ranch A/B (Miwok Stables)	Landscape	9/1/08	Fair
725123	GRBA	2009	Johnson Lake Mine Historic District	Landscape	8/11/08	Fair
975105	HALE	2008	Haleakala Highway	Landscape	9/8/08	Good
975494	HALE	2009	Civilian Conservation Corps Haleakala Crater Trails District	Landscape	7/25/08	Fair
975045	HAVO	2012	Kilauea Military Camp (KMC)	Landscape	6/24/11	Fair
975050	HAVO		Kilauea Historic District	Landscape	8/8/11	Good
975082	HAVO	2006	Crater Rim Historic District	Landscape	8/8/11	Good
975108	HAVO	2004	Ainahou Ranch House and Gardens	Component Landscape	6/30/09	Fair
400016	JODA	2009	Cant Ranch Historic District	Landscape	5/5/09	Good
725020	JOMU	2004	John Muir National Historic Site	Landscape	8/24/10	Fair
725029	JOTR	2004	Keys Ranch Historic District	Landscape	5/25/12	Fair
725033	JOTR	2011	Northern Piñon Mining District	Landscape	5/2/09	Fair

CLI number	*Park code*	*CLI date*	*Cultural Landscape Inventory Name*	*Property Level*	*Condition Updated*	*Condition Assessed*
725046	JOTR	2012	Lost Horse Mining Historic District	Landscape	5/25/10	Fair
975444	JOTR	2008	Hexie Mountains Mining Historic District	Landscape	7/24/08	Fair
975012	KALA	2011	Kalaupapa and Kalawao Settlements	Landscape	8/24/11	Poor
975016	KALA	2012	Moloka'i Light Station	Landscape	11/21/11	Fair
725048	LABE	2005	Modoc War Historic District	Landscape	8/23/10	Good
725265	LAKE	2010	Katherine Mine Historic District	Landscape	6/15/09	Fair
400017	LARO	2012	Fort Spokane Military Reserve Historic District	Landscape	4/10/12	Fair
725057	LAVO	2004	Drakesbad Guest Ranch	Landscape	7/18/09	Fair
725061	LAVO	2004	Mineral Headquarters Historic District	Landscape	9/6/07	Good
725063	LAVO	2000	Lassen Volcanic National Park Highway	Landscape	9/6/07	Fair
725221	MANZ	2004	Manzanar National Historic Site	Landscape	7/14/10	Fair
975323	MIIN	2007	Minidoka Internment National Monument	Landscape	2/15/07	Poor
700002	MOJA	2001	Kelso Depot	Landscape	8/29/07	Good
700015	MOJA	2011	Vulcan Mine Historic District	Landscape	2/28/11	Fair

CLI number	*Park code*	*CLI date*	*Cultural Landscape Inventory Name*	*Property Level*	*Condition Updated*	*Condition Assessed*
725129	MOJA	2007	Soda Springs Historic District	Landscape	6/12/07	Fair
725138	MOJA	2014	Mescal Historic Mining District	Landscape	5/5/13	Fair
725541	MOJA	2007	Rock Springs Land and Cattle Company	Landscape	9/17/07	Fair
400002	MORA	2004	Road to Paradise	Landscape	9/22/10	Fair
400018	MORA	2005	Nisqually Entrance	Component Landscape	9/9/10	Good
400019	MORA	2004	Christine Falls	Component Landscape	9/22/10	Good
400020	MORA	2004	Ricksecker Point	Component Landscape	9/22/10	Fair
400021	MORA	2004	Narada Falls	Component Landscape	9/22/10	Good
400023	MORA	2009	Longmire Developed Area	Landscape	7/1/09	Fair
400027	MORA	2004	Wonderland Trail	Landscape	9/9/10	Fair
400029	MORA	2007	Mather Memorial Parkway (Route 410)	Landscape	7/26/07	Fair
400030	MORA	2004	Mowich Lake Entrance Road	Landscape	9/22/10	Good
400031	MORA	2006	Westside Road	Landscape	8/31/11	Poor
400032	MORA	2005	Stevens Canyon Highway	Landscape	8/31/11	Poor
400033	MORA	2008	Yakima Park Highway	Landscape	7/23/08	Fair
400034	MORA	2005	East Side Highway	Landscape	9/21/10	Good
400118	MORA	2010	Sunrise Developed Area	Landscape	7/22/08	Fair

CLI number	*Park code*	*CLI date*	*Cultural Landscape Inventory Name*	*Property Level*	*Condition Updated*	*Condition Assessed*
400127	MORA	2002	Camp Muir	Landscape	9/9/10	Fair
725254	MUWO	2007	Muir Woods National Monument	Landscape	9/19/07	Good
400157	NEPE	2014	Spalding Historic District	Landscape	11/1/12	Good
400162	NEPE	revised 2002	East Kamiah/Heart of the Monster	Landscape	9/18/08	Fair
400180	NEPE	2012	Old Chief Joseph's Gravesite and Cemetery	Component Landscape	2/1/11	Fair
400183	NOCA	2005	Marblemount Ranger Station Historic District	Landscape	8/10/12	Fair
400212	NOCA	2002	High Bridge Ranger Station	Landscape	9/13/07	Fair
400086	OLYM	2000	Lake Crescent Lodge	Landscape	9/9/10	Good
400087	OLYM	1999	Rosemary Inn	Landscape	9/9/10	Poor
400088	OLYM	2012	Roose's Homestead	Landscape	4/1/11	Poor
400089	OLYM	2003	Park Headquarters	Landscape	9/9/10	Fair
400090	OLYM	2007	Kestner Homestead	Landscape	6/25/12	Fair
400091	OLYM	2012	Humes Ranch	Landscape	4/1/11	Fair
400222	OLYM	2014	Hoh Developed Area Historic District	Landscape	8/16/13	Fair
400233	OLYM	2000	Graves Creek Ranger Station	Landscape	9/9/10	Good
400200	ORCA	2014	Oregon Caves Historic District	Landscape	8/1/13	Fair
725276	PARA	2003	Waring Ranch	Landscape	8/26/08	Poor
725387	PARA	2003	Tassi Ranch	Landscape	8/26/08	Fair

CLI number	*Park code*	*CLI date*	*Cultural Landscape Inventory Name*	*Property Level*	*Condition Updated*	*Condition Assessed*
700017	PINN	2002	Pinnacles East Entrance District	Landscape	9/19/08	Fair
725071	PINN	2009	High Peaks Trail System	Landscape	4/1/09	Good
725493	PINN	2009	Ben Bacon Ranch Historic District	Landscape	4/1/09	Fair
725001	PORE	2013	Olema Valley/Lagunitas Loop Ranches Historic District	Landscape	3/22/12	Fair
725003	PORE	2011	Wilkins Ranch	Component Landscape	2/28/11	Fair
725005	PORE	2004	Point Reyes Ranches Historic District	Landscape	9/1/10	Fair
725006	PORE	2004	Home Ranch	Component Landscape	9/1/10	Good
725011	PORE	2004	D Ranch	Component Landscape	9/1/10	Poor
725012	PORE	2004	A Ranch	Component Landscape	9/1/10	Fair
725013	PORE	2004	L Ranch	Component Landscape	9/1/10	Fair
725014	PORE	2011	Giacomini Ranch	Component Landscape	2/28/11	Fair
725016	PORE	2004	B Ranch	Component Landscape	9/1/10	Poor
725017	PORE	2004	C Ranch	Component Landscape	9/1/10	Good
725167	PORE	2004	I Ranch	Component Landscape	9/1/10	Good

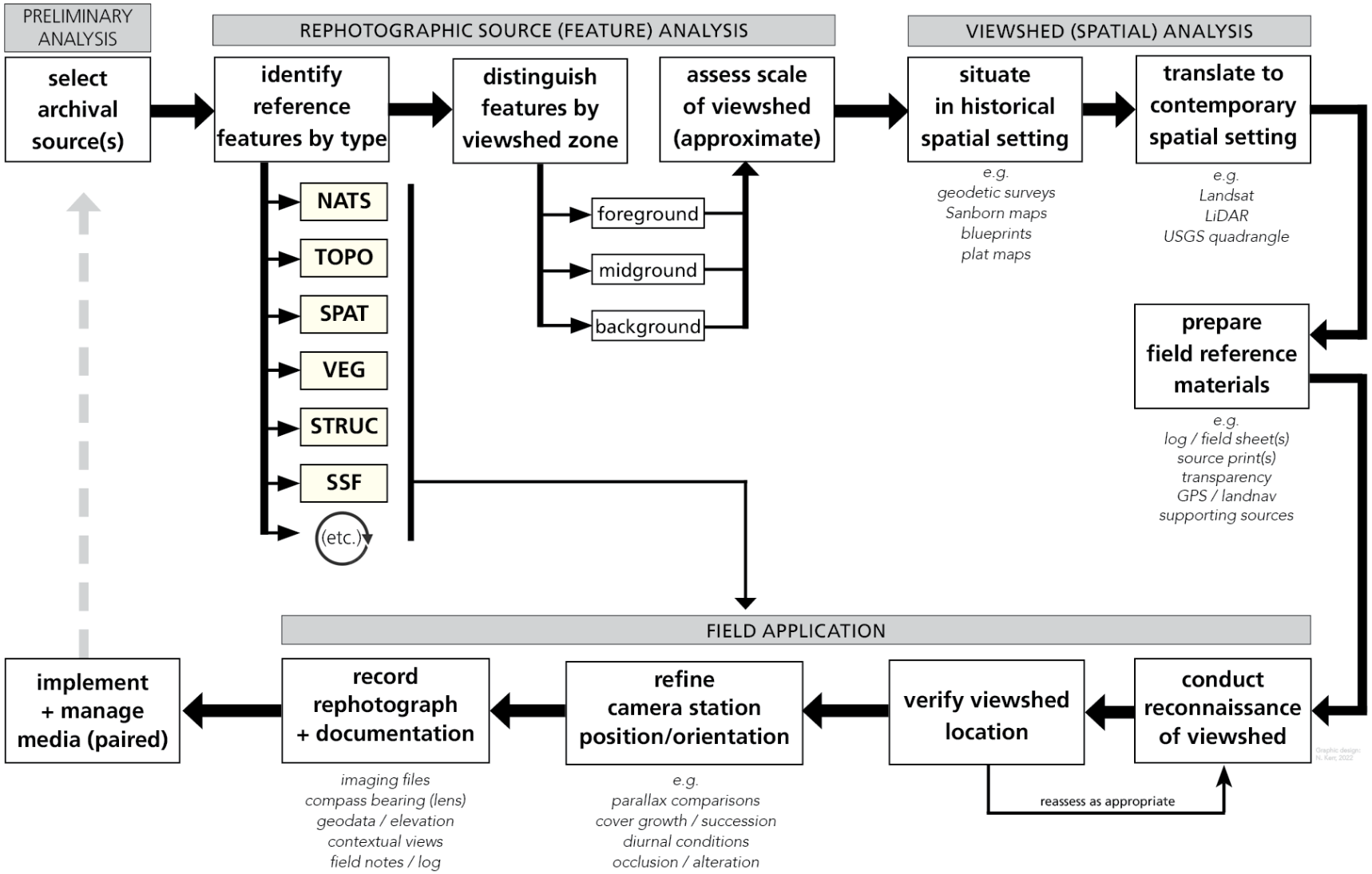
CLI number	*Park code*	*CLI date*	*Cultural Landscape Inventory Name*	*Property Level*	*Condition Updated*	*Condition Assessed*
725170	PORE	2004	Rogers Ranch	Component Landscape	9/1/10	Fair
725177	PORE	2004	Pierce Ranch	Component Landscape	9/1/10	Good
725182	PORE	2006	Point Reyes Lifeboat Station	Landscape	5/11/12	Good
725183	PORE	2009	Point Reyes Lighthouse	Landscape	9/25/08	Fair
725188	PORE	2010	RCA Point Reyes Receiving Station	Component Landscape	7/1/10	Fair
725189	PORE	2010	RCA Transmitting Station	Component Landscape	7/1/10	Fair
725191	PORE	2012	Zanardi Ranch	Component Landscape	2/3/10	Fair
725198	PORE		Lupton/Five Brooks Ranch	Component Landscape	3/22/13	Fair
725199	PORE		Stewart Ranch	Component Landscape	3/22/12	Fair
725200	PORE	2011	Truttman Ranch	Component Landscape	2/28/11	Fair
725202	PORE	2011	Rogers Ranch	Component Landscape	2/28/11	Fair
725203	PORE		McFadden Ranch	Component Landscape	11/3/10	Good
725206	PORE		McIsaac Ranch	Component Landscape	3/22/12	Fair
725209	PORE		Cheda Ranch	Component Landscape	3/22/12	Poor
725211	PORE		Teixeira Ranch	Component Landscape	3/22/12	Good

CLI number	*Park code*	*CLI date*	*Cultural Landscape Inventory Name*	*Property Level*	*Condition Updated*	*Condition Assessed*
725212	PORE	2011	Hagmaier Ranch	Component Landscape	2/28/11	Fair
725481	PORE	2004	M Ranch	Component Landscape	9/1/10	Fair
975035	PUHE	2003	Puukohola Heiau National Historic Landmark	Landscape	6/2/09	Fair
975502	PUHO	2009	Pu'uhonua o Hōnaunau National Historical Park Visitor Center	Landscape	6/16/09	Good
700003	REDW	2011	Prairie Creek Fish Hatchery	Landscape	6/2/11	Fair
700005	REDW	2004	Lyons Ranches Historic District	Landscape	8/23/10	Fair
700006	REDW	2013	Radar Station B-71	Landscape	7/18/12	Fair
725358	SAFR	2001	Aquatic Park	Component Landscape	9/4/07	Fair
400105	SAJH	2004	American Camp	Landscape	6/11/09	Fair
400106	SAJH	2004	English Camp	Landscape	6/11/09	Fair
400174	SAJH	2009	Sandwith Homestead	Landscape	8/1/09	Fair
725074	SAMO	2004	Rancho Sierra Vista Historic District	Landscape	9/15/08	Good
725075	SAMO	2006	Peter Strauss Ranch	Landscape	9/20/12	Fair
725076	SAMO	2005	Paramount Ranch	Landscape	7/14/09	Good
725360	SEKI	2010	Ash Mountain Historic District	Landscape	10/23/08	Good
725375	SEKI	2008	Mineral King Road Cultural Landscape District	Landscape	1/23/08	Good

CLI number	*Park code*	*CLI date*	*Cultural Landscape Inventory Name*	*Property Level*	*Condition Updated*	*Condition Assessed*
975116	WAPA	2013	War in the Pacific National Historical Park	Component Landscape	3/10/12	Poor
725213	WHIS	2003	Camden House Historic District	Landscape	6/1/09	Fair
725296	YOSE	2004	South Entrance Station	Landscape	6/3/09	Fair
725297	YOSE	2004	Mariposa Grove	Landscape	6/3/09	Fair
725308	YOSE	2007	Tuolumne Meadows	Landscape	6/28/13	Good
725311	YOSE	2007	Soda Springs Complex	Component Landscape	6/28/13	Good
725341	YOSE	2007	Glacier Point Road	Landscape	9/4/07	Fair
725351	YOSE	2010	Badger Pass Ski Area	Landscape	6/22/10	Fair
975546	YOSE	2011	Pioneer Yosemite History Center	Component Landscape	4/25/11	Fair
in process	CECH	2014	Cesar E. Chavez National Monument	Landscape		
in process	CRLA	n/a	Garfield Peak Trail	n/a		
in process	FOVA	n/a	McLoughlin House	n/a		
in process	JOTR	n/a	Pinon Mountains Mining Historic District	n/a		
in process	MORA	n/a	Paradise Developed Area	n/a		
in process	NOCA	2016	Buckner Homestead	Landscape		
in process	NOCA	n/a	Golden West Lodge	n/a		

CLI number	*Park code*	*CLI date*	*Cultural Landscape Inventory Name*	*Property Level*	*Condition Updated*	*Condition Assessed*
in process	WHIS	n/a	El Dorado Mine Historic District	n/a		

APPENDIX D: CULTURAL LANDSCAPE REPHOTOGRAPHIC PROCESS (REVISED FLOWCHART)



BIBLIOGRAPHY

Adams, Andrew, Eino-Ville Talvala, Sung Hee Park, David E. Jacobs, Boris Ajdin, Natasha Gelfland, Jennifer Dolson, et al. "The Frankencamera: An Experimental Platform for Computational Photography." Association for Computing Machinery Transactions on Graphics 29, no. 4 (July 2010): 1–12, doi:10.1145/1833349.1778766.

Ahern, Katherine, Leslie H. Blythe, and Robert R. Page. *Cultural Landscape Bibliography: An Annotated Bibliography on Resources in the National Park System.* Washington, D.C: NPS Park Historic Architecture Division, 1992.

Alanen, Arnold R. and Robert Z. Melnick, eds. *Preserving Cultural Landscapes in America*. Baltimore, MD: Johns Hopkins University Press, 2000.

Alesch, Richard J. "Cultural Landscape Management at Boxley Valley, Buffalo National River." *Proceedings of the Conference on Science in The National Parks.* Vol. 4, *Vegetation Change and Historic Landscape Management*. Edited by Susan Bratton. Fort Collins, CO: Colorado State University, 1986.

Amundson, Michael A. *Wyoming Time and Again: Rephotographing the Scenes of J.E. Stimson.* Boulder, CO: Pruett, 1991.

Andrews, C.L. *The Story of Sitka: Historic Outpost on the Northwest Coast, The Chief Factory of the Russian American Company.* Seattle: Lowman & Hanford, 1922.

Andrews, Thomas D. and Susan Buggey. "Authenticity in Aboriginal Cultural Landscapes." *APT Bulletin* 39, no. 2–3 (2008): 63–71.

Antonson, Joan M. and William S. Hanable. *An Administrative History of Sitka National Historical Park.* Anchorage, AK: NPS Alaska Region, 1987.

Antrop, Marc. "Why Landscapes of the Past Are Important for the Future." *Landscape and Urban Planning* 70, no. 1–2 (January 2005): 21–34.

Auwaerter, John. *Landscape Lines 17: Cultural Landscapes and NPS Facilities Management*. Boston, MA: Olmsted Center for Landscape Preservation, 2014.

Bae, Soonmin, Aseem Agarwala, and Frédo Durand. "Computational Rephotography." *Association for Computing Machinery Transactions on Graphics* 29, no. 3 (June 2010): 1-15, doi:10.1145/1805964.1805968.

Barnum, George. "Reading Historical Photographs: What Can We See, What Can We Learn?" Presentation at the GPO History Talk, April 17, 2013, www.gpo.gov/docs/default-source/history-pdf-files/reading_historical_photographs.pdf?sfvrsn=2.

Beagan, Chris and Susan Dolan. “Integrating Components of Resilient Systems into Cultural Landscape Management Practices,” *Change Over Time* 5, no. 2 (Fall 2015): 182–193.

Beaman, Thomas E. “The Archaeology of Morley Jeffers Williams and the Restoration of Historic Landscapes at Stratford Hall, Mount Vernon, and Tryon Palace.” *The North Carolina Historical Review* 79, no. 3 (July 2002): 347–372.

Bear, Jordan, and Kate Palmer Albers, eds. *Before-and-After Photography: Histories and Contexts*. New York: Bloomsbury, 2017.

Berg, Erik. “The Eagle and the Anasazi: Charles Lindbergh’s 1929 Aerial Survey of Prehistoric Sites in Arizona and New Mexico,” *The Journal of Arizona History* 45, no. 1 (Spring 2004): 1–30.

Berger, Antony R. “Tracking Rapid Landscape Change with Repeated Photography, Gros Morne National Park, Newfoundland, Canada.” *Atlantic Geology* 53 (2017): 115–126, doi:10.4138/atlgeol.2017.005.

Birnbaum, Charles A. *Preservation Brief 36: Protecting Cultural Landscapes: Planning, Treatment, and Management of Historic Landscapes* (Washington, D.C.: NPS, 1994).

Birnbaum, Charles A. and Cheryl Wagner, eds. *Making Educated Decisions: A Landscape Preservation Bibliography.* Washington, D.C.: National Park Service Cultural Resources, 1994.

Birnbaum, Charles A. Christine Capella Peters. *The Secretary of the Interior’s Standards for Historic Properties with Guidelines for the Treatment of Cultural Landscapes*. Washington, D.C.: U.S. Department of the Interior, National Park Service Heritage Preservation Services, Historic Landscape Initiative, 1996.

Birnbaum, Charles A. and Heather L. Barrett, eds. *Making Educated Decisions 2: A Landscape Preservation Bibliography*. Washington, D.C.: National Park Service Historic Landscape Initiative, 2000.

Birnbaum, Charles A. and Mary V. Hughes, eds. *Design with Culture: Claiming America’s Landscape Heritage.* Charlottesville, VA: University of Virginia Press, 2005.

Birnbaum, Charles A. *Preservation Brief 36: Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes*. Washington, D.C.: National Park Service Cultural Resources, 1994.

Blahnik, Vladan, and Oliver Schindelbeck. “Smartphone Imaging Technology and Its Applications.” *Advanced Optical Technologies* 10, no. 3 (2021). doi:10.1515/aot-2021-0023.

Boehle, Tina. “Website Explores Historic National Park Service Fire Lookout Photos.” Last modified September 5, 2019. www.doi.gov/employees/news/nps-website-explores-historic-nps-fire-lookout-photos.

Bontrager, Shannon. *Death at the Edges of Empire: Fallen Soldiers, Cultural Memory, and the Making of an American Nation, 1863–1921*. Lincoln, NE: University of Nebraska Press, 2020.

Bradley, Ben. “Photographing the High and the Low in British Columbia’s Provincial Parks.” *BC Studies* 170 (Summer 2011): 153–168, 201.

Brinkley, Douglas. *The Quiet World: Saving Alaska’s Wilderness Kingdom, 1879–1960*. New York: Harper Perennial, 2011.

Bromberg, Nicolette. *Wisconsin Then and Now: The Wisconsin Sesquicentennial Project*. Madison, WI: University of Wisconsin Press, 2001.

Burton, Christopher, Jerry T. Mitchell, and Susan L. Cutter. “Evaluating Post-Katrina Recovery in Mississippi Using Rephotography.” *Disasters* 35, no. 3 (2011): 488–509, doi:10.1111/j.1467-7717.2010.01227.x.

Butler, D.R., and L.M. DeChano. “Environmental Change in Glacier National Park, Montana: An Assessment through Repeat Photography from Fire Lookouts.” *Physical Geography* 22, no. 4 (2001): 291–304.

Calvin, Jack. *Sitka: A Short History.* Sitka, AK: Arrowhead, 1936.

Chalana, Manish. “With Heritage So Wild: Cultural Landscape Inventory in United States National Parks.” *Preservation Education & Research* 3 (2010): 1–16.

Chamber, Scott. “Elbridge Warren Merrill,” *The Alaska Journal* 7, no. 3 (Summer 1977).

Chandonnet, Ann. *Alaska’s Inside Passage.* New York: Compass, 2006.

Chaney, Gregory P., Robert C. Betts, and Dee Longenbaugh. *Physical and Cultural Landscapes of Sitka National Historical Park, Sitka, Alaska.* Douglas, AK: Vanguard Research, 1995.

Coe, Brian, and Mark Haworth-Booth. *A Guide to Early Photographic Processes.* London, UK: Victoria & Albert Publications, 1983.

Cracroft, Sophia. *Lady Franklin Visits Sitka, Alaska 1870.* Anchorage, AK: Alaska Historical Society, 1981.

Crittendan, Edwin B. *The Architecture of Sheldon Jackson College Campus.* Sitka, AK: Sheldon Jackson College Press, 1991.

Davis, Tim. “Photography and Landscape Studies.” *Landscape Journal* 8, no. 1 (Spring 1989): 5. https://www.jstor.org/stable/43323996.

Deming, M. Elen and Simon Swaffield. *Landscape Architecture Research: Inquiry, Strategy, Design.* Hoboken, NJ: John Wiley & Sons, 2011.

Denenberg, Thomas Andrew. *Wallace Nutting and the Invention of Old America.* New Haven, CT: Yale University Press, 2003.

Dickinson, Russell E. “Preservation Terminology.” In *Archaeology and Historic Preservation: Secretary of the Interior Standards and Guidelines*. Washington, D.C.: National Park Service, 1983.

“E. W. Merrill, 27 Oct 1929.” Pioneer Home discharge index, 1913-1958. Alaska Territory, Alaska State Archives, Juneau; FHL microfilm. https://familysearch.org/ark:/61903/1:1:7FXW-SBW2.

Earl, Graeme P. “At the Edges of the Lens: Photography, Graphical Constructions and Cinematography.” In *Digital Archaeology: Bridging Method and Theory*, edited by Thomas L. Evans and Patrick Daly, 191–210. New York: Routledge, 2006.

East, Amy E. and Joel. B. Sankey. “How Is Modern Climate Change Affecting Landscape Processes?” *EOS* 101 (December 2020), doi:10.1029/2020EO152788.

Englund, Sylvia R., Joseph J. O’Brien, and David B. Clark. “Evaluation of Digital and Film Hemispherical Photography and Spherical Densiometry for Measuring Forest Light Environments.” *Canadian Journal of Forestry Research* 30 (2000): 1995–2005.

Forest History Society. “Repeat Photography Bibliography.” Repeat Photography Collections for Sustainability and Working Forests, accessed September 19, 2020, http://repeatphotography.org/biblio.

Fox, William L. *View Finder: Mark Klett, Photography, and the Reinvention of Landscape*. Albuquerque, NM: University of New Mexico Press, 2001.

Gade, Daniel W. “Thoughts on Bibliographic Citations to and by Carl Sauer.” In *Carl Sauer on Culture and Landscape: Readings and Commentaries*, edited by William M. Denevan and Kent Mathewson, 29–52. Baton Rouge, LA: Louisiana State University Press, 2009.

Gat, Christopher, Alexandra Branzan Albu, Daniel German, and Eric Higgs. “A Comparative Evaluation of Feature Detectors on Historic Repeat Photography.” In *International Symposium on Visual Computing, Part II,* edited by G. Bevis et al., 701–714. Berlin, Germany: Springer Verlag, 2011. http://alexandra.albu.ca/publications/ISVC2011.pdf.

Gilbert, Cathy. “Cultural Landscapes and the New Technologies.” *The Public Historian* 13, no. 3 (Spring 1991): 109–112.

Gmelch, George and Sharon Bonn Gmelch. *In the Field: Life and Work in Cultural Anthropology*. Oakland, CA: University of California Press, 2018.

Gmelch, Sharon Bohn, "Elbridge Warren Merrill." *History of Photography* 19, no. 2 (1995), 159–172, doi:10.1080/03087298.1995.10442414.

—. *The Tlingit Encounter with Photography.* Philadelphia, PA: University of Pennsylvania Museum of Archaeology and Anthropology, 2008.

Gobster, Paul H., Robert G. Ribe, and James F. Palmer. "Themes and Trends in Visual Assessment Research: Introduction to the *Landscape and Urban Planning* Special Collection on the Visual Assessment of Landscapes." *Landscape and Urban Planning* 191 (November 2019), doi:10.1016/j.landurbplan.2019.103635.

Godfrey, Anne. *Active Landscape Photography: Theoretical Groundwork for Landscape Architecture.* New York: Routledge, 2020.

Goin, Peter. "Visual Literacy," *Geographical Review* 91, no. 12, special issue "Doing Fieldwork" (Spring 2001): 363–369.

Griffin, Kristen. *Early Views: Historical Vignettes of Sitka National Historical Park.* Anchorage, AK: National Park Service Alaska Regional Office, 2000.

Grusin, Richard. *Culture, Technology, and the Creation of America's National Parks*. New York: Cambridge University Press, 2004.

Hart, Richard H. and William A. Laycock. "Repeat Photography on Range and Forest Lands in the Western United States." *Journal of Range Management* 49, no. 1 (January 1996): 60–67, doi:10.2307/4002726.

Hastings, James Rodney and Raymond M. Turner. *The Changing Mile: An Ecological Study of Vegetation Change with Time in the Lower Mile of an Arid and Semiarid Region*. Tucson, AZ: University of Arizona Press, 1965.

Hauser, Kitty. *Shadow Sites: Photography, Archaeology, and the British Landscape, 1927–1951.* New York: Oxford University Press, 2007.

Heiferman, Marvin, ed. *Photography Changes Everything*. Reading, PA: Aperture, 2012.

Helphand, Kenneth. "Magic Markers," in *Yearbook in Landscape Architecture: Historic Preservation*, ed. Richard Austin et al. New York: Van Nostrand Reinhold, 1983, 95-102.

—. "Interpretive Interventions." *Cultural Resource Management* 18, no. 5 (1995): 13-17.

Hendrick, Laura E. and Carolyn A. Copenheaver. "Using Repeat Landscape Photography to Assess Vegetation Changes in Rural Communities of the Southern Appalachian Mountains in Virginia, USA." *Mountain Research and Development* 29, no. 1 (2009): 21–29, doi:10.1659/mrd.1028.

Hendriks, K.B., B. Thurgood, J. Iraci, B. Lesser, and G. Hill. *Fundamentals of Photograph Conservation: A Study Guide*. Toronto, ON: Lugus, 1991.

Hendriks, Klaus B. "Care of Black-and-White Photographic Glass Plate Negatives." *Canadian Conservation Institute (CCI) Notes 16/2,* 2007.

Higgs, Eric. *Nature by Design: People, Natural Process, and Ecological Restoration.* Cambridge, MA: The MIT Press, 2003.

Historic American Building Survey. *American Place: The Historic American Building Survey at Seventy-Five Years.* Washington, D.C.: NPS Heritage Documentation Programs, [nd].

Howett, Catherine M., "Where the One-Eyed Man Is King: The Tyranny of Visual and Formalist Values in Evaluating Landscapes," in *Understanding Ordinary Landscapes*, edited by Paul Growth and Todd W. Bressi. New Haven, CT: Yale University Press, 2009.

Jackson, John Brinckerhoff. *Discovering the Vernacular Landscape.* New Haven, CT: Yale University Press, 1986.

Jackson, John Brinckerhoff. *Landscape in Sight: Looking at America*. New Haven, CT: Yale University Press, 1997.

Jakle, John A. "Time, Space, and the Geographic Past: A Prospectus for Historical Geography." In *Historical Geography: A Methodological Portrayal*, edited by D. Brooks Green, 1084–1103. Savage, MD: Rowman & Littlefield, 1991.

—. *The Visual Elements of Landscape.* Amherst, MA: The University of Massachusetts Press, 1987.

"January 14, 1911." *Metal Worker, Plumber, and Steam Fitter* 75 (January–July 1911). New York: David Williams Co., 1911.

Jarvis, Jonathan B. "Director's Order #61: National Cemetery Operations." July 29, 2010. www.nps.gov/policy/DOrders/DO_61.pdf.

—. "NPS Director's Policy Memorandum 14-02: Climate Change and Stewardship of Cultural Resources." February 10, 2014. www.nps.gov/policy/PolMemos/PM-14-02.htm.

Johnson, Christopher E. and Vida Germano. "Evaluating the Adaptive Capacity of Cultural Landscapes to Climate Change: Incorporating Site-Specific Knowledge in National Park

Service Vulnerability Assessments." *Parks Stewardship Forum* 36, no. 1 (January 2020): 49–56.

Joseph Z. Silva Photography Album, ca. 1913. Alaska State Library Historical Collections, Alaska Digital Archives. Accessed August 25, 2019. https://vilda.alaska.edu/digital/collection/cdmg21/id/12073/rec/25.

Jussim, Estelle and Elizabeth Lundquist-Cock. *Landscape As Photograph.* New Haven, CT: Yale University Press, 1987.

Kane, Thomas. "The Use of Reverse Perspective in the Deduction of Plans and Elevations from Photographs." *Bulletin of the Association for Preservation Technology* 9, no. 3 (1977): 30–38.

Karl, Susan M., Peter J. Haeussler, Glen R. Himmelberg, Cathy L. Zumsteg, Paul W. Layer, Richard M. Friedman, Sarah M. Roeske, and Lawrence W. Snee. "Geologic Map of Baranof Island, Southeastern Alaska." Reston, VA: U.S. Geological Survey, 2015, doi:10.3133/sim3335.

Karpilo, Ronald D., Chris Allan, Jeffrey T. Rasic, and Bruce A. Heise. "Repeat Photography of Historical U.S. Geological Survey Expedition Photographs in Gates of the Arctic National Park and Preserve, Alaska." *Geological Society of America* 50, no. 6 (2018), doi:10.1130/abs/2018AM-323946.

Kay, Charles E. and Chad R. Reid. "Long-Term Changes in Southern Utah Upland Shrub Communities: A Study in Repeat Photography." *Natural Resources and Environmental Issues* 16, no. 31 (2011). https://digitalcommons.usu.edu/nrei/vol16/iss1/31.

Keller, Genevieve P. and J. Timothy Keller. "Preserving Important Landscapes." In *A Richer Heritage: Historic Preservation in the Twenty-First Century*, edited by Robert E. Stipe, 179–222. Chapel Hill, NC: University of North Carolina Press, 2003.

Kerr, Noah, and Robert Z. Melnick. *Pajarito Site (TA-18), Manhattan Project National Historical Park, Los Alamos, NM: Cultural Landscape Inventory.* Eugene, OR: University of Oregon Cultural Landscape Research Group, 2018.

Kerr, Noah P., Laurie Matthews, Robert Z. Melnick, Callan Roemer, and Hannah Six. *Pecos National Historical Park: Cultural Landscape Report* [draft]. Eugene, OR: University of Oregon Cultural Landscape Research Group, 2022.

Killion, Jeffrey, Gretchen Hilyard, and Robert R. Page. *National Park Service Cultural Landscape Inventory Professional Procedures Guide.* Washington, D.C.: U.S. Department of the Interior, 2009.

Klett, Mark, ed. *Third Views, Second Sights: A Rephotographic Survey of the American West.* Albuquerque, NM: Museum of New Mexico Press, 2004.

—. “Repeat Photography in Landscape Research,” in *The SAGE Handbook of Visual Research Methods*, edited by Eric Margolis and Luc Pauwels. Thousand Oaks, CA: SAGE, 2011.

Klett, Mark, Ellen Manchester, and JoAnn Verburg. *Second View: The Rephotographic Survey Project.* Albuquerque, NM: University of New Mexico Press, 1984.

Klett, Mark, Rebecca Solnit, and Byron Wolfe. *Yosemite in Time: Ice Ages, Tree Clocks, and Ghost Rivers.* San Antonio, TX: Trinity University Press, 2005.

Kull, Christian A. “Historical Landscape Repeat Photography as a Tool for Land Use Change Research.” *Norsk Geografisk Tidsskrift (Norwegian Journal of Geography)* 59, no. 4 (2005): 253–268.

Kumar, Novjatika. “Repetition and Remembrance: The Rephotographic Survey Project.” *History of Photography* 38, no. 2 (May 2014): 137–160, doi:10.1080/03087298.2013.840105.

Kwong, Emily. “Repeated Vandalism in Historic Sitka Cemetery.” KCAW Raven Radio News, October 26, 2015. www.kcaw.org/2015/10/26/repeated-vandalism-in-historic-sitka-cemetery.

Landscape Institute and Institute of Environmental Management & Assessment. *Guidelines for Landscape and Visual Impact Assessment.* 3rd ed. New York: Routledge, 2013.

Landscape Institute. “Photography and Photomontage in Landscape and Visual Impact Assessment.” Technical Guidance Note, Public Consultation Draft, June 2018.

Landscape Lines 3: Landscape Characteristics. Cultural Landscape Guidance Documents. Washington, D.C.: National Park Service, Park Cultural Landscapes Program, 1998.

Landscape Lines 5: Graphic Documentation. Washington, D.C.: NPS Park Cultural Landscapes Program, [nd].

Longstreth, Richard, ed. *Cultural Landscapes: Balancing Nature and Heritage in Preservation Practice.* Minneapolis, MN: University of Minnesota, 2008.

Lowenthal, David. “Nature and Morality from George Perkins Marsh to the Millennium.” *Journal of Historical Geography* 26, no. 1 (2000): 3–27, doi:10.1006/jhge.1999.0188.

—. “Past Time, Present Place: Landscape and Memory.” *Geographical Review* 65, no. 1 (1975): 1–36.

—. *The Past Is a Foreign Country.* Cambridge, UK: Cambridge University Press, 1985.

Lukac, Rastislav, ed. *Computational Rephotography: Methods and Applications.* Boca Raton, FL: CRC Press, 2010.

MacLaren, I.S., Eric Higgs, and Gabrielle Zezulka-Mailloux. *Mapper of Mountains: M.P. Bridgland in the Canadian Rockies, 1902–1930.* Edmonton, AB: University of Alberta Press, 2005.

MacLaren, I.S., Michael Payne, Peter J. Murphy, PearlAnn Reichwein, Lisa McDermott, C. J. Taylor, Gabrielle Zezulka-Mailloux, Zac Robinson, and Eric Higgs. *Culturing Wilderness in Jasper National Park: Studies in Two Centuries of Human History in the Upper Athabasca River Watershed.* Edmonton, AB: University of Alberta Press, 2007.

Margolis, Eric and Jeremy Rowe. "Methodological Approaches to Disclosing Historic Photographs." In *The SAGE Handbook of Visual Research Methods*. Thousand Oaks, CA: SAGE, 2011.

Marsh, George Perkins. *Man and Nature; or, Physical Geography as Modified by Human Action.* New York: Scribner, 1865.

Matero, Frank and Judy Peters. "Survey Methodology for the Preservation of Historic Burial Grounds and Cemeteries." *APT Bulletin 34*, nos. 2/3 (2003): 37–45.

Matthews, Laurie, Rachel Edmonds, Edward San Filippo, and Jen Straite. *Yosemite Lodge Historic District: Cultural Landscape Report* [review draft]. Portland, OR: MIG, Inc., 2018, in partnership with Yosemite National Park.

Matthews, William H. *A Guide to the National Parks: Their Landscape and Geology.* Vol. 1, *The Western Parks*. Garden City, NY: Natural History Press, 1968.

Mawell, Ingvall, Ratish Nanda, and Dennis Urquhart. *Guide for Practitioners 2: Conservation of Historic Graveyards*. Edinburgh, UK: Historic Scotland, 2001.

McBrinn, Maxine, ed. *Oblique Views: Aerial Photography and Southwest Archaeology.* Santa Fe, NM: Museum of New Mexico Press, 2015.

McClelland, Linda Flint, J. Timothy Keller, Genevieve P. Keller, and Robert Z. Melnick. *National Register Bulletin 30: Guidelines for Evaluating and Documenting Rural Historic Landscapes.* Washington, DC: U.S. Department of the Interior, National Park Service, 1999.

McLaughlin, Robert Bishop, "The Evaluation of Historical Photographs: Considerations for Visual Resources Curators and Librarians in Museums and Archives." *Art Documentation* 8, no. 2 (Summer 1989): 55–60.

Meier, Lauren G. "The NPS Historic Landscape Initiative: Developing National Standards for the Treatment of Historic Landscapes." *CRM Bulletin* 13, no. 2 (1990): 12–13.

Meinig, D.W., ed. *The Interpretation of Ordinary Landscapes.* New York: Oxford University Press, 1979.

Melnick, Robert Z. "Cultural Landscapes and Climate Change: Protecting Resources that Matter in a Future of Uncertainty." In *New Cultural Landscapes,* edited by Maggie Roe and Ken Taylor. New York: Routledge, 2014.

—. "Nature and Culture in Historic Landscape Preservation." In *Preserving Cultural Landscapes in America.* Baltimore, MD: Johns Hopkins University Press, 2000, 30–32.

—. "Preserving Cultural and Historic Landscapes: Developing Standards." *Cultural Resource Management Bulletin* 3, no. 1 (March 1980): 1–7.

—. "Protecting Rural Cultural Landscapes: Finding Value in the Countryside." *Landscape Journal* 2, no. 2 (1983): 85–96.

Melnick, Robert Z., Daniel Sponn, and Emma Jane Saxe. *Cultural Landscapes: Rural Historic Districts in the National Park System.* Washington, D.C.: Department of the Interior, 1984.

Melnick, Robert Z., Noah P. Kerr, Veronica Malinay, and Olivia Burry-Trice. *Climate Change and Cultural Landscapes: A Guide to Research, Planning, and Stewardship.* Eugene, OR: University of Oregon, 2017.

Melnick, Robert Z., Stephen L. Stover, and Daniel C. Sponn. *Identifying, Evaluating, and Managing Cultural Landscapes in National Parks.* Washington, D.C.: National Park Service, 1982.

Mendelsohn, Janet and Christopher Wilson, eds. *Drawn to Landscape: The Pioneering Work of J.B. Jackson*. Charlottesville, VA: University of Virginia Press and George F. Thompson Publishing, 2015.

Merrill, E.W. Letter to National Park Service, July 5, 1919. National Archives Record Group 79.

Meyer, Judith L. and Yolanda Youngs. "Historical Landscape Change in Yellowstone National Park: Demonstrating the Value of Intensive Field Observation and Repeat Photography." *Geographical Review* 108, no. 33 (2018): 387–409.

Miller, Hugh C. "Rural Landscapes." *Cultural Resource Management Bulletin* 10, no. 6 (1987): 1–3.

Mostafavi, Mohsen, and David Leatherbarrow. *On Weathering: The Life of Buildings in Time.* Cambridge, MA: MIT Press, 1993.

Muir, John. *Travels in Alaska.* New York: Houghton Mifflin Company, 1915.

Mullen, Karina C., Gregory Newman, and Jessica L. Thompson. "Facilitating the Development and Evaluation of a Citizen Science Web Site: A Case Study of Repeat Photography and Climate Change." *Applied Environmental Education & Communication* 12, no. 4 (2013): 261–271.

Murtagh, William J. *Keeping Time: The History and Theory of Preservation in America.* Pittstown, NJ: Main Street Press, 1988.

National Park Service, *State of the Park Report for Sitka National Historical Park,* State of the Park Series No. 36. Washington, D.C.: National Park Service, 2016.

—. "Characterizing the Acoustic Environment." In *Reference Manual 47*, NPS Natural Resource Stewardship and Science. Last updated November 19, 2021. www.nps.gov/subjects/sound/rm47-part-3_characterizing.htm.

—. "Silent Sentinels of Kiska—the Japanese Guns of the Kiska WWII Battlefield." Aleutian Islands World War II National Historic Area, December 6, 2020.

—. *Cultural Resource Management Guidelines.* No. 5. Washington, DC: U.S. Department of the Interior, National Park Service, 1997.

—. *Reference Manual 61: National Cemetery Operations*, 2011, www.nps.gov/policy/DOrders/RM-61.pdf.

—. *Sitka National Historical Park: Foundation Statement.* Anchorage, AK: NPS Alaska Regional Office, June 2012.

National Register of Historic Places. Sitka National Cemetery, Sitka, Alaska. NRHP ID 12000057, AHRS SIT-00023. Washington, D.C.: NPS, 2012.

—. W.P. Mills House, City and Borough of Sitka, Alaska. NARA 77000226. Washington, D.C.: NPS, 1977.

National Resource Conservation Service Plant Data Team, "OPHO Plant Profile," PLANTS Database, U.S. Department of Agriculture, accessed January 3, 2020, https://plants.usda.gov/core/profile?symbol=OPHO.

Neher, Shyla D., Dorothy Orbison, and Nancy J. Ricketts. *Kettleson Memorial Library Cemetery Project*. Sitka, AK: Sitka City and Borough, 2014.

Newhall, Beaumont, "60,000 Eggs a Day," *Image: Journal of Photography of the George Eastman House* 4, no.4 (April 1955): 25–27.

Nowacki, Greg, Page Spencer, Terry Brock, Michael Fleming, and Torre Jorgenson. "Ecoregions of Alaska and Neighboring Territory." File report 02-297 (map). Reston, VA: USGS, 2001.

Nutting, Wallace. *Photographic Art Secrets*. New York: Dodd, Mead & Company, 1931.

—. *Wallace Nutting Pictures: Expansible Catalog*. Framingham, MA: Wallace Nutting, Inc., 1917. Library of Congress TR199.N8, https://lccn.loc.gov/15007167.

Orvell, Miles. "Cultural Studies, Visual Studies, Historical Studies: Connecting the Dots." *American Studies* 47, no. 2 (Summer 2006): 87-103, http://www.jstor.org/stable/40643914.

Osborn, Sannie Kenton. "Death in the Daily Life of Ross Island Colony: Mortuary Behavior in Frontier Russian America," PhD Dissertation, University of Wisconsin-Madison, 1997.

Page, Robert R., Cathy R. Gilbert, and Susan A. Dolan. *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques*. Washington, D.C.: National Park Service, Park Historic Structures and Cultural Landscapes Program, 1998.

Page, Robert R., Jeffrey Killion, and Gretchen Hilyard. *National Park Service Cultural Landscape Inventory Professional Procedures Guide.* Washington, D.C.: National Park Service, Park Historic Structures and Cultural Landscapes Program, 2009.

Page, Robert R. "Cultural Landscape Preservation in Context: Responding to a Changing Environment." *The George Wright Forum* 32, no. 1 (2015): 59–70, www.georgewright.org/321.pdf.

Patrick, Andrew. *The Most Striking of Objects: The Totem Poles of Sitka National Historical Park*. Anchorage, AK: NPS Alaska Support Office, Sitka National Historical Park, 2002.

Pavelka, K., E. Matoušková, K. Pavelka, Jr., and J. Pacina. "Spatial 3D Documentation of Historical Mining Remnants in Forested Area in the Erzgebirge/Krušnohoří Mining Region UNESCO Site." *International Archives of Photogrammetry, Remote Sensing, and Spatial Information Sciences* 46, no. 1 (2021): 528.

Payne, Brett. "E.W. Merrill—From Cyanotypes to Sitka's Father of Pictures." April 26, 2011. https://photo-sleuth.blogspot.com/2011/04/ew-merrill-from-cyanotypes-to-sitkas.html.

Pepper, Charlie and Susan Dolan. "Maintained Landscapes in the National Park Service." *The George Wright Forum* 31, no. 1 (2014): 45–52, http://www.georgewright.org/311pepper.pdf.

Pezzoni, Sara. "Picture the Past, Looking to the Future: The Forest History Society's Repeat Photography Portal." *Bulletin of the Ecological Society of America* 98, no. 2 (April 2017): 110–112, www.jstor.org/stable/90002400.

Pollnow, Anne, Ana Ditmar, and Roby Littlefield. *Sitka Historic Preservation Plan*. Sitka, AK: Sitka Historic Preservation Commission, 2017.

Provins, Allan, David Pearce, Ece Ozdemiroglu, Susana Mourato, and Sian Morse-Jones. "Valuation of the Historic Environment: The Scope for Using Economic Valuation Evidence in the Appraisal of Heritage-Related Projects." *Progress in Planning* 69 (2008): 131–175, doi:10.1016/j.progress.2008.01.001.

Rabinowitz, Richard. "Interpreting in the Landscape: A Hebridean Perspective," *CRM* 17, no. 7, Thematic Issue on Landscape Interpretation (1994): 11.

Rapaport, Amos. "On Cultural Landscapes." *Traditional Dwellings and Settlements Review* 3, no. 2 (Spring 1992): 33–47.

Richman, Angela. "Every Place Has a Climate Story." *The George Wright Forum* 32, no. 1 (2015): 71–76, www.georgewright.org/321.pdf.

Roe, Maggie and Ken Taylor, eds. *New Cultural Landscapes*. New York: Routledge, 2014.

Rogers, Garry F. *Then & Now: A Photographic History of Vegetation Change in the Central Great Basin Desert.* Salt Lake City, UT: University of Utah Press, 1982.

Rogers, Garry F., Harold E. Malde, and Raymond M. Turner. *Bibliography of Repeat Photography: Evaluating Landscape Change.* Salt Lake City, UT: University of Utah Press, 1984.

Rose, Katherine. "Concerned over Hidden Costs, Assembly Passes," KCAW Raven Radio News, September 11, 2019, https://www.kcaw.org/2019/09/11/concerned-over-hidden-costs-assembly-passes-on-240000-federal-grant.

Roush, W., J.S. Munroe, and D.B. Fagre. "Development of a Spatial Analysis Method Using Ground-Based Repeat Photography to Detect Changes in the Alpine Treeline Ecotone, Glacier National Park, Montana, U.S.A." *Arctic, Antarctic, and Alpine Research* 39, no. 2 (May 2007): 297–308, www.jstor.org/stable/4139100.

Ryden, Kent C. "Why Your World Looks the Way It Does and Why It Matters: Cultural Landscape as Visual Culture." *Visual Arts Research* 32, no. 2 (2006): 73–75.

Sanborn Fire Insurance Map from Sitka, Sitka Census Division, Alaska. Sanborn Map Company, October 1914. Retrieved from the Library of Congress Map, www.loc.gov/item/sanborn001226_001.

Sandweiss, Martha A, ed. *Photography in Nineteenth-Century America.* Fort Worth, TX: Amon Carter Museum, 1991.

—. “Image and Artifact: Photograph as Evidence in the Digital Age.” *The Journal of American History* 94, no. 1 (June 2007): 193-202.

—. *Print the Legend: Photography and the American West.* New Haven, CT: Yale, 2004.

Sauer, Carl O. “The Morphology of Landscape.” *University of California Publications in Geography* 2, no. 2 (1925).

Schlüter, Otto. *Die Ziele der Geographie des Menschen*. Cited in John Leighly and William W. Speth, “Emergence of Cultural Geography,” *Yearbook of the Association of Pacific Coast Geographers* 57 (1995): 171, doi:10.1353/pcg.1995.0015.

Schuyler, David and Patricia M. O’Donnell. “The History and Preservation of Urban Parks and Cemeteries,” in *Preserving Cultural Landscapes in America,* Arnold R. Alanen and Robert Z. Melnick, eds. (Baltimore, MD: Johns Hopkins University Press, 2000), 70–93.

Scidmore, E[liza] Ruhaman. *Alaska, Its Southern Coast and the Sitkan Archipelago*. Boston, MA: D. Lothrop & Company, 1885.

Scott, Douglas D. *Metal Detecting Reconnaissance of Portions of the Cañoncito Subunit of Glorieta Battlefied, Pecos National Historical Park, New Mexico.* Lincoln, NE: Connor Consulting, 2011.

Sellars, Richard West. *Preserving Nature in the National Parks.* New Haven, CT: Yale University Press, 1997.

Senf, Rebecca A. and Stephen J. Pyne. *Reconstructing the View: The Grand Canyon Photographs of Mark Klett and Byron Wolfe*. Berkeley, CA: University of California Press, 2012.

Seymour, Michael W. and Peter R. Summerlin. “Evidence and Deception: A Historic Photo-Analysis Method for Landscape Studies,” *Landscape Journal* 36, no. 2 (2017): 91–109.

Shepherd, Stephen R.J. “Laser-Scanning for Landscape Planning: Implications for Policy and Practice from an End-User’s Perspective,” *International Archives of Photogrammetry, Remote Sensing, and Spatial Information Sciences* 36, no. 8/W2 (2004): 240–241.

Shoard, Marion. “Why Landscapes Are Harder to Protect Than Buildings.” In *Our Past Before Us: Why Do We Save It?* Edited by David Lowenthal and Marcus Binney. London: Maurice Temple Smith, 1981, 83–108.

—. “Edgelands of Promise.” *Landscape* 1, no. 2 (2000): 74–93.

—. “Edgelands.” In *Remaking the Landscape.* Edited by Jennifer Jenkins. London: Profile Books, 2002, 117–146.

Sitka Training School. *The Thlinget*. Sitka, Alaska. 1908–1912. Chronicling America: Historic American Newspapers. U.S. Library of Congress.

Skovlin, J.M., G.S. Strickler, J.L. Peterson, A.W. Sampson. *Interpreting Landscape Change in High Mountains of Northeastern Oregon from Long-term Repeat Photography*. PNW-GTR-505. Portland, OR: United States Department of Agriculture, Forest Service, Pacific Northwest Research Station, 2001.

Smith, Gordon, "USC&GSS Carlile P. Patterson," electronic transcription of *Log Books of the U.S. Coast & Geodetic Survey, 19th and 20th Centuries*, updated January 24, 2018, https://www.naval-history.net/OW-US/Patterson/USCGSS_Patterson.htm.

Smith, Trudi. "Repeat Photography as a Method in Visual Anthropology." *Visual Anthropology* 20 (2007): 179–200, doi:10.1080/08949460601152815.

—. "The Anthropology of Historical Photography in a Protected Area: Life and Death in Waterton Lakes National Park, Alberta." *Anthropologia* 56 (2014): 117–133.

Smith-Middleton, Holly and Arnold R. Alanen. *Impressions of Indian River: A Landscape History of Sitka National Historical Park.* Anchorage: Alaska Systems Office, National Park Service, 1998.

—. *Testaments to Place and Time: A Cultural Landscape Report for Sitka National Historical Park.* Anchorage: Alaska Systems Support Office, National Park Service, 1999.

Solocator. "About Solocator." Accessed January 15, 2022. www.solocator.com.

Stahlschmidt, Per, Simon Swaffield, Jørgen Primdahl, and Vibeke Nellemann. *Landscape Analysis: Investigating the Potentials of Space and Place.* New York: Routledge, 2017.

Stewart, Tamara Jager, "Charles Lindbergh's Little-Known Passion," *American Archaeology* 20, no. 4 (Summer 2017): 23–25.

Stilgoe, John R. *Landscape and Images.* Charlottesville, VA: University of Virginia Press, 2005.

Striegel, Mary F., Frances Gale, Jason Church, and Debbie Dietrich-Smith. "Preservation Brief 48: Preserving Grave Markers in Historic Cemeteries." Technical Preservation Services, National Park Service, September 2016.

Taft, William Howard. *Sitka National Monument,* Presidential Proclamation No. 959, March 23, 1910 (36 Stat. 2601).

Talvala, Eino-Ville Aleksi. "The Frankencamera: Building a Programmable Camera for Computational Photography." PhD dissertation, Stanford University, 2011.

Trachtenberg, Alan, ed. *Classic Essays on Photography*. New Haven, CT: Leete's Island, 1980.

—. “Through A Glass, Darkly: Photography and Cultural Memory.” *Social Research* 75, no. 1 (Spring 2008): 111–132.

—. *Reading American Photographs: Images as History, Mathew Brady to Walker Evans.* New York: Hill and Wang, 1989.

Treib, Marc. “The Measure of Wisdom: John Brinckerhoff Jackson (1909-1996).” *Journal of the Society of Architectural Historians* 55, no. 4 (December 1996): 380–381 / 490–491.

Turner, Raymond M., Robert H. Webb, Janice Emily Bowers, and James Rodney Hastings. *The Changing Mile Revisited: An Ecological Study of Vegetation Change with Time in the Lower Mile of an Arid and Semi-Arid Region.* Tucson, AZ: University of Arizona Press, 2003.

U.S. Geological Survey. “Glacier and Landscape Change in Response to Changing Climate.” Accessed October 14, 2017. http://www.usgs.gov/climate_landuse/glaciers/default.asp.

United States Census, 1910. Database with images, FamilySearch (https://familysearch.org/ark:/61903/1:1:MPZK-YV4 : accessed July 10, 2019), Ellridge W Merrill, Sitka, Division 1, Alaska, United States; citing enumeration district (ED) ED 1, sheet 34A, family 242. NARA microfilm publication T624 (Washington D.C.: National Archives and Records Administration, 1982), roll 1748; FHL microfilm 1,375,761.

United States Census, 1930. Database with images, FamilySearch (https://familysearch.org/ark:/61903/1:1:XHB2-7RL: accessed 10 July 2019), Elbridge W Merril [sic], Sitka, First Judicial District, Alaska, United States; citing enumeration district (ED) ED 35, sheet 9B, line 49, family 81. NARA microfilm publication T626 (Washington D.C.: National Archives and Records Administration, 2002), roll 2626; FHL microfilm 2,342,360.

University of Oregon Program in Historic Preservation. Sheldon Jackson School National Historic Landmark, Sitka, Alaska: Campus Preservation Plan. Anchorage, AK: NPS Alaska Regional Office, 2004.

Upton, Dell. “Seen, Unseen, and Scene.” In *Understanding Ordinary Landscapes*, edited by Paul Groth and Todd W. Bressi, 174–179. New Haven, CT: Yale University Press, 1997.

USGS Northern Rocky Mountain Science Center. “Interpreting Panoramic Lookout Photos.” Series: Panoramic Project Shows How National Parks Change Over Time, July 2020, www.nps.gov/articles/interpreting-panoramic-lookout-photos.htm.

Vale, Thomas R. “Vegetation Changes and Park Purposes in the High Elevations of Yosemite National Park.” *Annals of the Association of American Geographers* 77, no. 1 (March 1987): 1-18. Accessed February 13, 2015. http://www.jstor.org/stable/256919.

Vale, Thomas R. and Geraldine R. Vale. *U.S. 40 Today: Thirty Years of Landscape Change in America*. Madison, WI: University of Wisconsin Press, 1983.

Wardman, George. *A Trip to Alaska: What Was Seen and Heard During a Summer Cruise in Alaskan Waters*. San Francisco, CA: Samuel Carson & Co., 1884.

Watt, Laura Alice. "Managing Cultural Landscapes: Reconciling Local Preservation and Institutional Ideology in the National Park Service." PhD Dissertation, University of California, Berkeley, 2001.

Waugaman, Candy, "Index to Photographers of Alaska," XLS spreadsheet, Finding Aids, Alaska State Archives and Records Management, https://library.alaska.gov/hist/hist_docs/indexes/CandyWaugamanPHTGRPHR.xls.

Webb, Diane E. Boyer, and Raymond M. Turner, eds. *Repeat Photography: Methods and Applications in the Natural Sciences.* Washington, D.C.: Island, 2010.

Webb, Melody. "Cultural Landscapes in the National Park Service." *The Public Historian* 9, no. 2 (Spring 1987): 82.

Webb, Robert E. *Grand Canyon, A Century of Change: Rephotography of the 1889–1890 Stanton Expedition.* Tucson, AZ: University of Arizona Press, 1996.

Webb, Robert H., Stanley A. Leake, and Raymond M. Turner. *The Ribbon of Green—Change in Riparian Vegetation in the Southwestern United States*. Tucson, AZ: University of Arizona Press, 2007.

Wellcome, Henry S. "Sitka [Alaska]." NARA 297241. Sir Henry Wellcome Collection, 1856–1936. Box 280, Former Alaska Region. U.S. National Archives at Seattle (RW-SE).

Wendler, Gerd, Kevin Galloway, and Martin Stuefer, "On the Climate and Climate Change of Sitka, Southeast Alaska." *Theoretical and Applied Climatology* 126 (2016): 27–34.

White, Cliff, and E.J. (Ted) Hart. *The Lens of Time: A Repeat Photography of Landscape Change in the Canadian Rockies*. Calgary, AB: University of Alberta, 2007.

Willoughby, Barret. *Sitka: Portal to Romance*. Boston, MA: Houghton Mifflin Co., 1930.

Woodman, Abby Johnson. *Picturesque Alaska: A Journal of a Tour among the Mountains, Seas and Islands of the Northwest, from San Francisco to Sitka.* Cambridge, MA: Riverside Press, 1889.

Wunderler-Selby, Althea R. "Fraser Hall Restoration Report," SFAC Historic Restoration Internship Program, Sitka, AK, 2018.

Wyatt, Barbara. “National Register Policy Clarification: Integrity Requirements for Settings and Locations of Locomotives and Other Rolling Stock.” National Park Service, April 2009.

Zammit, Paul, Andrew R. Harvey, and Guillem Carles. “Extended Depth-of-Field Imaging and Ranging in a Snapshot.” *Optica* 1 (2014): 209–216, doi:10.1364/OPTICA.1.000209.

Zelinsky, Wilbur. *The Cultural Geography of the United States.* Englewood Cliffs, NJ: Prentice-Hall, 1973.

Zeisel, John. *Inquiry By Design: Environment / Behavior / Neuroscience in Architecture, Interiors, Landscape, and Planning*. New York: W.W. Norton & Co., 2006.

Zube, Ervin H. and Margaret J. Zube. *Changing Rural Landscapes.* Amherst, MA: University of Massachusetts Press, 1977.

Zube, Ervin H., James L. Sell, and Jonathan G. Taylor. “Landscape Perception: Research, Application, and Theory,” *Landscape Planning* 9 (1982): 7–8.