

THE GRAND CANON

A Worldwide Bibliography

of the

Grand Canyon *and* Lower Colorado River
Regions in the United States and Mexico

16th to 21st Centuries

**Volume 1, Part A:
Introduction, Statistics, Surveys and Commentaries**

FIFTH EDITION

Earle E. Spamer



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BIBLIOGRAPHICAL AND HISTORICAL RESOURCES ON THE
GRAND CANYON AND LOWER COLORADO RIVER REGIONS OF THE
UNITED STATES AND MEXICO

THE GRAND CANON : A WORLDWIDE BIBLIOGRAPHY OF THE GRAND CANYON AND LOWER
COLORADO RIVER REGIONS IN THE UNITED STATES AND MEXICO, 16th TO 21st CENTURIES
Volume 1, Part A: Introduction, Statistics, Surveys and Commentaries
Fifth Edition

CATALOGERS NOTE
canon: *a standard or
essential list of works*

The Grand Canon
not The Grand Canyon

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SURVEYS AND COMMENTARIES

ALL LINES BELOW ARE HYPERLINKS — POSITION CURSOR AND ACTIVATE

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SURVEYS

1. Earlier General Bibliographies for the Grand Canyon and Colorado River

2. Comparable Bibliographical Productions for National Park Service Units

by Earle E. Spamer

FOR MORE THAN A CENTURY bibliographical lists have accounted for publications about the Grand Canyon and the Colorado River. The earliest lists did not focus on these regions except within larger compilations; for example, a bibliography about Arizona. They were modest achievements primarily because they focused on the major and most interesting productions then available—when of course there also were fewer of them. They cited what even then were iconic works, which at the time were not so old as we view them now, and newer works that were in those days part of current-reading lists. Even after the creation of the National Park Service in 1916 and the raising of Grand Canyon National Monument to national park status in 1919, no special efforts were made to establish a comprehensive bibliographical understanding of what had been written about the Grand Canyon, or for that matter any of the national park units. It was not until the Depression era of the 1930s, and government-funded jobs programs like those of the Work Projects Administration (renamed Works Progress Administration in 1939), which helped raise civilian morale and national economy, that more serious efforts were made to produce something comprehensive.

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Earlier General Bibliographies for the Grand Canyon and the Colorado River

THE BIBLIOGRAPHICAL LISTINGS in PART 1 of THE GRAND CANON Volume 1/Part A contain bibliographies and similar fact-finding compilations like indices. One will find there numerous Grand Canyon–Colorado River lists. Some are inclusions in larger works; others are mimeographed or otherwise inexpensively produced documents with relatively limited distribution. They all are traditional in scope; usually the forms of the citations they contain are not terribly comprehensive, sometimes lacking in precision that makes the task of locating copies of items more difficult.

Ignoring many special-interest bibliographies—for example, geology, botany, or ornithology—the chronological listing of more general bibliographies below tells a story of ambitious and broad projects. This selection of works includes titles that relate to the Grand Canyon or the Colorado River even though in many cases the substantive part of the bibliography may be more broadly “Arizona”, or an even greater geographical expanse, containing far more citations about other aspects of the state or region that are extralimital to THE GRAND CANON. Some of them, however, include specially itemized sections for either or both the Grand Canyon and the Colorado River.

The list farther below is informative too for what it does *not* contain. Only a couple of the products offer an accounting as comprehensive as possible specifically for the Grand Canyon. The majority of products are cursory or repetitive in their coverage of the locales of interest to THE GRAND CANON; all of them include mostly the same material, with minor differences or through chronological updating. Even when the Grand Canyon is specially cited in these earlier works, focuses are still on the national park, which at the time had significantly less acreage than it has today. By intimation they included the whole of the physiographic canyon, of course, but the selective focuses were based on the political unit. Furthermore, those works that specially listed citations relating to the Colorado River more often embraced the entire river basin (THE GRAND CANON is restricted to the Lower Basin).

A 1919 National Park Service bibliography for the new Grand Canyon National Park, included in the Department of the Interior’s annual report, is a patchwork compilation of the “usual” stand-outs; for example, the iconic exploration and research monographs of Joseph C. Ives (1861), John W. Powell (1875), and Clarence E. Dutton (1882), and a selection of magazine articles that seems to have been collated more fortuitously than from

careful research (that is, whatever was at hand). Even though the Grand Canyon was then a newly established national park, the canyon had long been a national destination for travelers and researchers. Legally protected variously as a forest reserve, game preserve, and national monument, the Grand Canyon was a *de facto* national park for some years before its formal designation. As demonstrated by citations in [THE GRAND CANON](#) here, books and articles on the Grand Canyon had long been pulished with exhaustive attention, which makes the 1919 official list all the more peculiar for what was selected to be in it.

Hazel Voth and Harold Gill’s 1939 production, *Grand Canyon National Park; A Bibliography* was the first serious attempt to compile a Grand Canyon bibliography, the result of work done with the cooperation of the Work Projects Administration (renamed Works Progress Administration in 1939) and the Civilian Conservation Corps. Typewritten and mimeographed for distribution, its 114 pages centered on the National Park Service unit, but by the nature of the contents of the works cited it unavoidably, and preferably, embraced a much larger portion of Southwest landscape and history. It was the first openly “official” bibliography about the canyon and the river from the perspective of the National Park Service; thus it was the first such administrative bibliographical tool for the park.

The list that follows, selected from [PART 1](#) of [THE GRAND CANON](#) bibliography, is a chronology of basic, non-specialized reference works that precede or are contemporary with the editions of [THE GRAND CANON](#); there are numerous others that have special topical focuses, as one will see by examining [Part 1](#). These works, compiled for different purposes and audiences, are nevertheless the principal productions on which generations of researchers and administrators have relied; just a few were created after the first published Grand Canyon–Lower Colorado River bibliography in 1981. Inserted into this chronology are my comments on them, and a chronology of earlier work on what now is [THE GRAND CANON](#).

- 1900 George Wharton James, “Bibliography of the Grand Canyon Region”, in **In and Around the Grand Canyon**. Boston: Little, Brown, and Co., pp. 339-341.
A cursory listing of books and articles known to the author. Lacks details.
- 1900 Joseph Amasa Munk, **Bibliography of Arizona books, pamphlets and periodicals in the library of Dr. J. A. Munk**. Los Angeles: [privately printed], 28 pp.
Focused only on the holdings of one individual’s personal, but extensive, collection.
- 1908 Joseph Amasa Munk, **Arizona bibliography: a private collection of Arizoniana**. Los Angeles: [privately printed], 98 pp.
Expanded from the 1900 listing.

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- 1913 Estelle Lutrell, **A bibliographical list of books, pamphlets and articles on Arizona in the University of Arizona Library.** Tucson: University of Arizona, 60 pp. ["Grand Canyon" and "Colorado River" lists, p. 37.]
Very limited coverage for the canyon and river, though restricted to the holdings of one institution.
- 1914 Hector Alliot, **Bibliography of Arizona; being the record of literature collected by Joseph Amasa Munk, M.D., and donated by him to the Southwest Museum of Los Angeles, California.** Los Angeles: The Southwest Museum, 3rd ed. 431 pp.
Focused only on the holdings of one individual's personal, but extensive, collection.
- 1919 **"Bibliography of books, government reports, and magazine articles on Grand Canyon National Park."** *From:* Report of the Director of the National Park Service. *In: Reports of the U.S. Department of the Interior for the fiscal year ended June 30, 1919. Volume I.* Washington, D.C.: U.S. Government Printing Office, pp. 1256-1260.
This is the first compilation specifically for Grand Canyon National Park, although it is limited in scope.
- 1922 B. L. Walsworth, **The Colorado River and its tributaries: A bibliography of books, magazine articles, and government documents in the Riverside Public Library.** Riverside, California, 132 pp.
Focused on the holdings of one library.
- 1931 International Water Commission, American Section, **"Selected classified list of references and sources relating to utilization of lower Colorado River."** *In:* Report of the American Section of the International Water Commission, United States and Mexico. *U.S. 71st Congress, 2nd Session, House Document 359*, pp. 97-98.
Limited in scope to the international issues surrounding the use of the lower Colorado River and its diversions for agriculture and power production; an early representation of government-sponsored bibliography for this region.
- 1935 **The Colorado River, with special reference to the Boulder Dam.** [Washington, D.C.]: Library of Congress, Division of Bibliography, 47 pp.
The first water-supply bibliography for the Colorado River, focused on and coincident with the construction of Hoover Dam.
- 1939 Hazel Hunt Voth and Harold Gill, **Grand Canyon National Park; a bibliography.** U.S. National Park Service, 114 pp.
The first comprehensive bibliography for Grand Canyon National Park and the definitive work for decades thereafter.

SURVEYS

- 1941 U.S. National Park Service, **A bibliography of the national parks and monuments west of the Mississippi River. Volume 2.** Washington, D.C.: U.S. National Park Service (compiled at the Western Museum Laboratories of the National Park Service with assistance provided by the Work Projects Administration and the Civilian Conservation Corps). [Boulder Dam Recreation Area, pp. 1-2; Grand Canyon, pp. 3-131; southwestern national monuments, p. 132.]
The Grand Canyon portion is in large part probably extracted from the 1939 work by Voth and Gill.
- 1953 Francis P. Farquhar, **The books of the Colorado River and the Grand Canyon: a selective bibliography.** Los Angeles: Glen Dawson, 75 pp. [600 copies.] [This has been reprinted in 1991 and 2003. A sequel for 1953-2003 is Ford (2003).]
The “gold standard” of Grand Canyon and Colorado River bibliographies as a selection of important and “worthwhile” titles.
- 1955 Lawrence Clark Powell, **Heart of the Southwest: A selective bibliography of novels, stories and tales laid in Arizona and New Mexico and adjacent lands.** Los Angeles: Printed for Dawson’s Book Shop at the Platin Press, 42 pp., map.
An important contribution to regional bibliography for its selection of creative works.
- 1958 Lawrence Clark Powell, **A southwestern century: A bibliography of one hundred books of non fiction about the Southwest** (illustrated by Tom Lea). Van Nuys, California: J. E. Reynolds, 29 pp.
In the vein of Farquhar’s 1953 volume for the canyon and river, Powell’s work is a personal selection embracing the greater Southwest.
- 1960 Donald M. Powell, **An Arizona gathering; a bibliography of Arizoniana, 1950-1959.** Tucson: Arizona Pioneers’ Historical Society, 77 pp. (Pamphlet Series, no. 2) [Limited to 400 copies. Superseded by Powell (1973).]
Limited by its coverage of one decade.
- 1969 David M. Goodman, **Arizona odyssey; bibliographic adventures in nineteenth-century magazines.** Tempe, Arizona: Arizona Historical Foundation, 360 pp.
A very useful compendium as it deals with magazine articles of the 1800s; however, numerous errors have been identified (and of those found and pertinent to the Grand Canyon and lower Colorado River regions, emended in The Grand Canon).
- 1969 Guidon Books, **The Colorado River, people and places; a catalog of books, pamphlets, maps and manuscripts** (introduction by C. Gregory Crampton). Scottsdale, Arizona: Guidon Books, 84 pp.
Useful for its selection of titles and annotations.
- 1970 Ruth L. Ruder, with Mr. and Mrs. Peter S. Bennett, **Selected list of references on the Grand Canyon area.** Museum of Northern Arizona, 42 pp. [mimeographed].
A general work.

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- 1973 Donald M. Powell, **An Arizona gathering II, 1950-1969; an annotated bibliography.** Tucson: University of Arizona Press, 207 pp.
An expansion of the 1960 bibliography, limited by its coverage of two decades.
- 1974 Karen Ravitch, **Wide deeps, big water; a bibliographic guide to the Grand Canyon and the Colorado River.** Master's thesis, [institution not determined], 66 pp.
Copies seen, but a curious item not subsequently catalogued in standard library catalogues online; and the author seems never to have published anything further.
- 1974 Richard Yates and Mary Marshall, **The Lower Colorado River: A bibliography.** Yuma, Arizona: Western Arizona College Press, 153 pp.
The first purposely focused bibliography for the region below Grand Canyon.
- 1974 [*Compiling the Bibliography of the Grand Canyon and the Lower Colorado River begun by Earle Spamer.*]
- 1975 Dennis Kubly, **An annotated bibliography of limnologically related research on the Colorado River and its major tributaries in the region of Marble and Grand Canyons.** Grand Canyon National Park, Colorado River Research Series, Contribution no. 9, under contract no. PO PX821041350, 27 pp.
Noted here as perhaps the first definitive bibliography of a special subject confined to the Colorado River through Grand Canyon National Park.
- 1978 Catherine T. Nutt and the Editors of Discovery, **Grand Canyon and the Colorado Plateau; a bibliography of selected titles in the NAU Libraries.** Northern Arizona University Libraries, 64 pp. (Discovery Series, no. 14.)
As indicated, selective and focused on the collections of one institution.
- 1979 Gerald Stahler, **The Grand Canyon dams controversy, 1963-1968: A bibliographic research guide.** Monticello, Illinois: Vance Bibliographies, 41 pp. (Public Administration Series: Bibliography; no. P-274.)
This bibliography of an important social and administrative issue for Grand Canyon also includes references that do not have direct bearing on the Grand Canyon, but instead are references to the context of contemporary issues of politics and the environment.
- 1981 [*First edition of Earle Spamer's Bibliography of the Grand Canyon and the Lower Colorado River: Grand Canyon Natural History Association, Monograph 2.*]
- 1984 Anthony J. Rose, **Annotated bibliography of Colorado Plateau holdings of the Grand Canyon National Park Research Library.** Northern Arizona University, Field Work Experience, History 608, [146] pp. including 504 photocopied 3-x-5-inch cards.
An expanded coverage beyond the focus of Spamer's 1981 first edition of the Grand Canyon-lower Colorado River bibliography; not meant for publication but otherwise indispensable for its larger scope and in a collection as assembled by the Grand Canyon National Park Research Library.

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- 1990 [*Second edition of Earle Spamer's Bibliography of the Grand Canyon and the Lower Colorado River: Grand Canyon Natural History Association, Monograph 8.*]
- 1991 Francis P. Farquhar. **The books of the Colorado River and the Grand Canyon.** Austin, Texas: W M Morrison Books, 41 pp.; includes [5]-page addendum, "Index of authors and editors, with titles added to the index for the 1991 edition" [by W. M. Morrison].
Reprint of the 1953 edition; reset.
- 1992 Arizona State Library Association, Children's Services Roundtable, **Arizona heritage: Bibliography of materials and directory of authors, illustrators and storytellers for teachers, librarians and parents.** Arizona Humanities Council, 144 pp.
The first educationally-focused bibliography for the region.
- 1993 ["Supplement 1" to the second edition of Earle Spamer's Bibliography of the Grand Canyon and the Lower Colorado River: *Grand Canyon Natural History Association, Monograph 8, Supplement 1.*] [No more supplements were produced in this series.]
- 2000 [*The digitally searchable "Internet Edition" of Earle Spamer's A Bibliography of the Grand Canyon and the Lower Colorado River first posted online on the Grand Canyon Association website, January 2000. It is frequently updated through May 2015; removed in October 2021.*]
- 2003 Francis P. Farquhar. **The books of the Colorado River and the Grand Canyon : a selective bibliography** (ed., endnotes by Daniel F. Cassidy; expanded index by Richard D. Quartaroli). Flagstaff, Arizona: Fretwater Press, 98 pp. ("Reprinted 2003 by Five Quail Books, Prescott, Arizona, in cooperation with Fretwater Press, Flagstaff, Arizona".)
Reprint of the 1953 ed., with endnotes and an expanded index. Printing is reset but format, typography and binding reproduce that of Farquhar's original.
- 2003 Mike S. Ford, **The books of the Grand Canyon, the Colorado River, the Green River and the Colorado Plateau, 1953-2003; a selective bibliography.** Flagstaff, Arizona: Fretwater Press, 178 pp.
The important sequel to Farquhar's 1953 volume; in precisely the same vein.
- 2004 Marcia L. Thomas, **John Wesley Powell; an annotated bibliography.** Westport, Connecticut: Praeger Publishers, 256 [259] pp. (Bibliographies and Indexes in American History, No. 49.)
Indispensable for studies about the man and his work, embracing far more than his celebrated exploits on the Colorado River.
- 2006 A. Leeper, "The grandest canyon of them all." *Book Links*, 16(1): 32-34.
Contains lists of internet website links. An interesting item that should be useful in tracking the extinction rates of these selected online resources for the Grand Canyon. (While such items are useful for their currentness when published, they are not useful for retrospective documentation such as may be required in management issues and administrative affairs.)

SURVEYS

- 2011 [*Trial version of The Grand Canon informally distributed in February; labeled as the “Comprehensive Edition”.*]
- 2012 [*First edition of the new bibliographical series, The Grand Canon. Digitally produced, it reinstates the monographic version of Bibliography of the Grand Canyon and Lower Colorado River and providing extensive new features.*]
- 2015 [*Second edition of The Grand Canon. Greatly expanded, produced to commemorate the 40th anniversary (2014) of the Grand Canyon–lower Colorado River bibliography project.*]
- 2019 [*Third edition of The Grand Canon for 1535-2018. Partly reorganized, even more greatly expanded and with considerable aesthetic embellishments. Distributed in advance of the centennial of Grand Canyon National Park (February 26, 2019) and also to commemorate the sesquicentennial of John Wesley Powell’s first Colorado River expedition.*]
- 2021 [*First edition of the Cartobibliography of the Grand Canyon and Lower Colorado River Regions in the United States and Mexico, 1535-2021 : an Accompaniment to THE GRAND CANON.*]
- 2022 [*Fourth edition of The Grand Canon for 1535-2021. Even more greatly expanded and with some significant additions and emendations. Volume 1: Introduction and Bibliography*]
- 2022 [*Second edition of Cartobibliography of the Grand Canyon and Lower Colorado River Regions in the United States and Mexico, 1535-2021 : Volume 2 of THE GRAND CANON. Expanded and revised, with reformatted citations.*]
- 2022 [*First edition of Grand Canyon, Colossal Mirror : the Term “Grand Canyon” as Used in Geographical Nomenclature, Analogy, Metaphor, and Neology, with an Appendix on Colorado River Nomenclature : Volume 3 of THE GRAND CANON. Formerly included as an appendix in early editions of The Grand Canon, then posted separately to the Raven’s Perch website, now a formalized publication.*]
- 2025 [*Fifth edition of The Grand Canon for to 2024 (and a few citations for 2025). Even more greatly expanded and with some significant additions and emendations. Volume 1/Part A: Introduction, Statistics, Surveys and Commentaries. Volume 1/Part B: Bibliography.*]
- 2025 [*Third edition of Cartobibliography of the Grand Canyon and Lower Colorado River Regions in the United States and Mexico : Volume 2 of THE GRAND CANON. Expanded and revised.*]
- 2025 [*Second edition of Grand Canyon, Colossal Mirror : the Term “Grand Canyon” as Used in Geographical Nomenclature, Analogy, Metaphor, and Neology, with an Appendix on Colorado River Nomenclature : Volume 3 of THE GRAND CANON.*]

In this list one sees that until recently there have been few efforts to very comprehensively document the research and creative works that relate to the Grand Canyon and Colorado River. There have been numerous efforts to produce selected lists,

though. Yet because of their utilitarian uses most of them held little expectation for broad dissemination.

Part 1 of THE GRAND CANON lists many more bibliographies and comparable productions that specially focus on one or another precise topic with the regions of interest here. One example is Goulet and LaGory's 2009 extensively annotated bibliography on the humpback chub¹, a Colorado River fish whose limited Grand Canyon habitat is endangered by the river's human-influenced flow regime, the result of the operation of Glen Canyon Dam upstream from Marble and Grand Canyons. This work was produced for the Western Area Power Administration (WAPA) by the Environmental Science Division of the Argonne National Laboratory. It obviously serves as a comprehensive guide to previous research for those working on environmental studies of the fishes of the Colorado River in Grand Canyon, comprising a review of the scientific and administrative literature on the subject. However, in terms of its primary purpose, it was produced in response to administrative needs of WAPA, the operating entity for power production and distribution in the West, including Glen Canyon Dam. Thus, a bibliography can serve both a widely interested audience and function as an informational guidance document for resource managers and administrative professionals; and it feasibly can be used as a summary document in matters of legislative action and judicial opinion.

THE GRAND CANON is not an annotated bibliography even though many of its citations include notations that move in this direction. It can, however, be used to produce a fully annotated bibliography, with appropriate editorial comments, either of the whole or for selected components. Similarly, this bibliography can be excerpted to create more focused bibliographies for any number of purposes.

¹ C. T. Goulet and K. E. LaGory, *Annotated Bibliography for the Humpback Chub (Gila cypha) with Emphasis on the Grand Canyon Population* (Environmental Science Division, Argonne National Laboratory, Argonne, Illinois, for Western Area Power Administration, Colorado River Storage Project Management Center, Salt Lake City, Utah, 1990), 236 pp.

2

Comparable Bibliographical Productions for National Park Service Units²

THE GRAND CANON is the descendant of previous bibliographies and was the source document for the Internet Edition while that was online 2000–2021. The whole work has been independently compiled since 1974; and since 1981 the project has been supported through publication, distribution, and web access by the Grand Canyon Association (now the Grand Canyon Conservancy), a cooperating association with Grand Canyon National Park. The content of the bibliography, however, has been wholly my responsibility, with the added benefit of various contributors of citations who are cited in the acknowledgements of its various editions.

The earlier print editions were distributed as part of the Association’s *Monograph* series, most of which had been distributed *gratis* as a service to academic institutions and individual researchers. In this way the bibliography furthers the Association’s mission to “benefit Grand Canyon National Park” and to provide “premier educational opportunities about the natural and cultural history of the region”. In so doing it also provides a research tool to the park’s administrative and interpretive staffs. Grand Canyon National Park’s website also includes links to the Association and to the bibliography, something that, as is explained below, is still a unique public service within the National Park System.

The survey that follows is one that was conducted in 2009–2010. Things have changed quite a lot in the past decade in the way the National Park Service expresses its online presence, which regrettably has significantly diminished the number of online bibliographical resources that were previously noted. The new presence shows far more standardization of NPS unit web pages. Layouts and the types of information follow the same model now, which favors streamlined web pages designed for conventional screens and (preferably, it seems) portable personal devices (smartphones, tablets, etc.). Examples for Grand Canyon National Park and Lake Mead National Recreation Area, from 2018, are shown *farther below* as they appear on conventional screens.

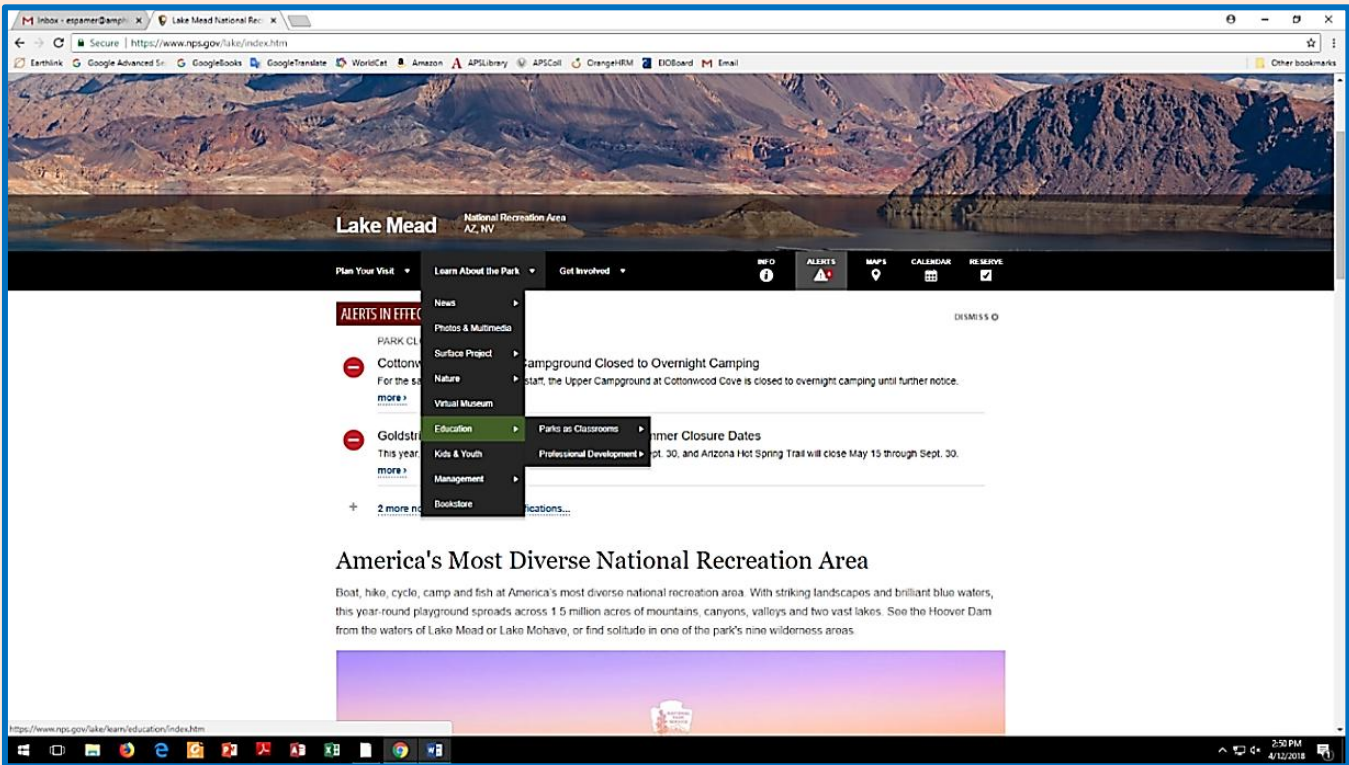
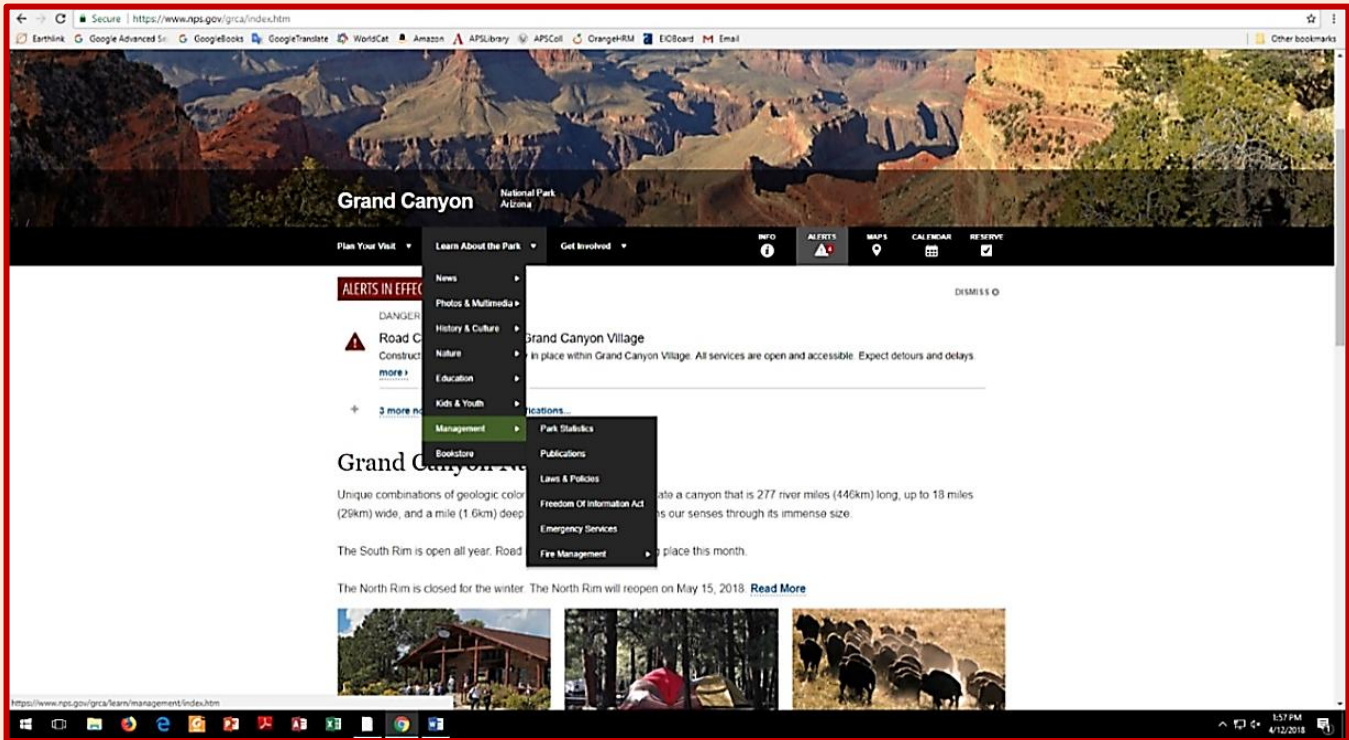
This standardization has modified the kinds and amounts of materials that once had been accessed through these webpages. Whereas various “selected” bibliographies were noted on these webpages in the 2010 study, none seem to be present now, reflecting the

² This section was first published in the first edition of THE GRAND CANON (2012). A resurvey was begun for the third edition (2019), but it encountered technological and thematic changes to National Park Service websites that made comparison unreliable, if not impossible. This was due to format and user viewing-style changes but principally due to content changes on those websites. Much of the needed information is no longer present on NPS unit-specific sites; a move toward substantially reducing content. The table from 2012 is thus reproduced here, with emendations to the preliminary remarks so as to accommodate some changes.

current streamlined format. Even the breadth of management documents so accessed is less through these webpages; and it is among them that are found various bibliographies noted to have been parts of management plans and various other reports reposted to the website or linked from it. Accordingly, the framework of the 2010 study was informative enough to be worthwhile reviewing it again here. It had also taken note of available printed bibliographies, which have in any case not been substantially increased in that time.

illustrations follow

SURVEYS



THE FOCUS of this survey is on printed or web-based access to bibliographical resources about individual, politically defined and geographically restricted National Park Service units. During the research done toward this study, comparisons were also made in more general fashion with similar governmental units charged with the land, resource, and site management. These other (non-Park Service) governmental units consistently show less attention to bibliographical resources in public venues, even as compared to the attention given these resources by National Park Service units, thus the attention here on the Park Service. This in itself is telling; that the National Park Service has continually demonstrated at least a perfunctory acknowledgment of the research and administrative values of bibliographies.

The bibliographical resources searched for are those that may be available through publication under government or affiliate imprints, or posted directly to the units' websites. The aim here is to identify those units of the National Park Service that have themselves produced, promoted or cited accountings of publications that relate to those units through either print references or their websites.

As noted, THE GRAND CANON extends its coverage beyond Grand Canyon National Park, embracing lands overseen by numerous other agencies of federal and state governments as well as Native American and privately-owned lands. Yet as a whole it serves to document the works about a unique, conterminous landscape, its resources and peoples. Only conceptually it is all awarded to the Grand Canyon and the Colorado River, but nonetheless the search for comparable bibliographical coverage, past or present, has likewise been extended to the entire region, its administratively overseen parts at federal, state, and similar levels of oversight. The search has been to identify, specifically, those research tools that function in the same fashion as THE GRAND CANON.

It seems incongruous that other than THE GRAND CANON no comparably robust and broadly accessible current accounting of publications has been found for any other unit administered by the National Park Service or other federal public-lands agencies. One might assume that certain National Park System units—two high-profile examples are Gettysburg National Military Historical Park and Independence National Historical Park, both highly visited areas each with a long history of detailed scholarship and popular writing—would have tremendous bibliographical research resources readily available; not just on-site at these units' research centers but widely, through publication or website posting. Thus far none have been identified. Scholars can produce citations that will inform users of numerous exceedingly well-documented bibliographical compendia for locations

such as these³, perhaps even some annotated and critical overviews of existing literature on the specific historical fields on which they focus. It is quite a different thing, though, to find bibliographies that cover *all subjects* for a *geographically delimited* service unit or for a geographical region embracing it.

There are separate, detailed resource reviews that are “off the radar” of traditional bibliographies, too. One such item (found randomly) is geographically close to but out of scope with THE GRAND CANON —*An Overview of the Cultural Resources of the Western Mojave Desert*⁴, which is particularly interesting because it also describes a detailed literature-search project. Surely many more similar productions of lesser or greater ambition are available for discrete geographical areas like that covered by THE GRAND CANON or the Western Mojave Desert project; however, they are not easily identified or adequately advertised, nor are they usually noticed for awards. The second edition (1990) of *Bibliography of the Grand Canyon and the Lower Colorado River* received an Award of Honorable Mention in Publications in the 1991–1992 National Park Service Cooperating Association Publications Competition.

Bibliographies that relate to national parks in general, or national parks of particular regions of the country, are also commonly found. They contextually overlap with the kind of coverage provided by bibliographies that pertain (or would pertain) to specific Park Service units.

The only comprehensive bibliographical tool that approached THE GRAND CANON in scope and content was the *Greater Yellowstone Bibliography (GYB)* online, hosted by the University of Wyoming Libraries.⁵ Although apparently no longer available, it is worth

³ For example, a masterful bibliography of the Gettysburg military campaign (as opposed to all things about today’s Gettysburg National Military Historical Park) may be seen in Richard Allen Sauers, *The Gettysburg Campaign, June 3–August 1, 1863; a Comprehensive, Selectively Annotated Bibliography* (Greenwood Press, Westport, Connecticut, 1982). For the second example, it seems superfluous to select a similar kind of bibliography for Philadelphia’s Independence National Historical Park or its historical events given the proliferation of Colonial-era reference works that are available. However, of particular note is an 8,000-item *unpublished* bibliography that was assembled by 1953 for restoration work on Independence Hall, although it included large numbers of manuscript materials and citations from photographic archives. That was a prodigious work, one which is representative of many of the types of unpublished resources that may be available for select park units. (Information on the Independence Hall work from Constance M. Greiff, *Independence; the Creation of a National Park*, University of Pennsylvania Press, Philadelphia, 1987.) Nonetheless, Independence National Historical Park still lacks an all-encompassing and current master bibliography among its easily accessed resources such as those examined here (Karen Stevens, Archivist, Independence National Historical Park, personal communication).

⁴ Gary E. Stickel and Lois J. Weinman-Roberts, *An Overview of the Cultural Resources of the Western Mojave Desert*, Eric W. Ritter, general ed., Environmental Research Archaeologists: A Scientific Consortium, Los Angeles, 1980, for U.S. Bureau of Land Management, California Desert Planning Program, Riverside.

⁵ *Greater Yellowstone Bibliography (GYB)*, “developed by William O. Van Arsdale with help from Tami Hert and technical web support by the UW Libraries, Library Technology Support, October 2000. Updated 8/8/2001.” [University of Wyoming Libraries, Laramie] <http://www-lib.uwyo.edu/db/ynp/default.cfm>. William O. Van

noting its scope. The website indicated that the *GYB* was last updated in 2001 and “contains over 28,900 bibliographic citations to scholarly, popular, professional, and creative literature about the greater Yellowstone region of Idaho, Montana, and Wyoming”. But the structure and function of the Yellowstone production differed greatly from those of *THE GRAND CANON*. Users interacted with it only through a single webpage, its search screen. Queries parsed citations only as lists of links to individual catalogue records; the search returns could not be printed or downloaded as a set of citations such as returned by the online Grand Canyon bibliography. *GYB* added some photographs and descriptions of artifacts, although no special effort had been made to be comprehensive. There were (and are) no earlier versions of the Yellowstone production available in printed format, and neither Yellowstone National Park nor the Yellowstone Association sponsored the *GYB*. Supplementing the Yellowstone work is the administratively-focused *Management of the Greater Yellowstone Ecosystem; An Annotated Bibliography*⁶, which, again, is not a production of either the park or its cooperating association. Also, A “Yellowstone Database” restricted to scientific literature was available until about 2020 although static for the previous decade; it was posted to the Washington State University website and contained “about 14,060 references”.⁷

Arsdale, III, is a Wyoming writer and bibliographer, a professor in the University of Wyoming Libraries. *GYB* was last accessed by the compiler 1 April 2012, but when revisited 28 May 2013 it was not found, nor has it been replaced anywhere on the University of Wyoming Libraries website, or elsewhere. *GYB* had contained nearly 29,000 citations, though as a database it was not in any way visible as a contiguous, browsable whole. When it was last accessed it had not been updated in more than a decade. Since then, *THE GRAND CANON* has grown by tens of thousands more citations. (*E.E.S.*, April 2018.)

⁶ Tim W. Clark (project manager and contributor) and Ann H. Harvey (editor and contributor), *Management of the Greater Yellowstone Ecosystem; an Annotated Bibliography*, 2nd ed. (Northern Rockies Conservation Cooperative, Jackson, Wyoming, 1999), 92 pp., maps.

⁷ <http://refbase.wsulibs.wsu.edu/yellowstone/index.php> (last accessed February 18, 2020; not accessible November 13, 2021). Queries to the Yellowstone Database retrieve summary lists of pertinent publications, but to view bibliographical information one must use a hyperlink to view each individual citation, one by one. Search links on the library’s page imply that there may be material that had been very recently added; these link, though, are standard links for searches in this library. The Yellowstone Database has no further additions after 2010.

SURVEYS

Two Comparable Online Field-Searchable National Park–Related Bibliographies^A

	<i>A Bibliography of the Grand Canyon and Lower Colorado River</i>	<i>Greater Yellowstone Bibliography</i>
URL:	see Note A	see Note A
<i>Sponsorship</i>	Grand Canyon Association	University of Wyoming Libraries
<i>Sponsor Status</i>	Not-for-profit park partner	State academic institution
<i>Author Affiliation to Sponsor</i>	Independent/Member	Professor
<i>No. of Items</i> ^B	66,000+	28,900+
<i>Year Begun / Posted Online</i>	1974 / 2000	? / 2000
<i>Last Updated</i>	2015/2018	2001
<i>Availability Online</i>	2000–2021	2000–2012 or 2013
<i>Date Range of Publications</i>	1535–2015	Not specified
<i>User Interaction</i>	Separate website	Single search screen on university library website
<i>Searchable Fields</i> ^C	5 <i>Author</i> <i>Keywords</i> ^D <i>Subject Area</i> ^E <i>Year Range</i> (user-defined) ^F <i>Citation Number</i> (unique item number)	3 <i>Author</i> <i>Subject Keyword</i> ^E <i>Geographic Location</i>
<i>Queries Return</i>	Full citations in a complete list arranged alphabetically by author	List of links to library catalog records
<i>No. of Returns per Screen Page</i>	Query can return 1–999 records (full citations) per page. (This is a user-selected number; the default is 25 records per page.)	Query returns one page that contains a list of links to individual online catalog records
<i>Printable/Downloadable</i>	1–999 records at a time (from user-defined query)	One record at a time (when the linked catalog record is viewed)
<i>Browsable</i>	Yes ^G	No
<i>Traditional Citation Format</i>	Yes	No
<i>Citations Include Notes</i>	Yes	No
<i>Reference List Cross-references</i>	Yes ^H	No
<i>Website Includes Commentary</i>	Yes	No
<i>Previous Print Volumes</i>	1981, 1990, 1993 ^I	None
<i>Monographic Format Available</i>	Yes [THE GRAND CANON] ^A	No

Notes follow

Notes

- A Table updated to 2021. The online bibliography, as noted in the Introduction to THE GRAND CANON, was, except for some editing, no longer updated after mid-2015 and was removed in October 2021. It is now wholly superseded by THE GRAND CANON, a searchable monographic series that now (2025) contains 111,000 items.** The *Greater Yellowstone Bibliography* was, in terms of breadth of coverage for a geographical area related to National Park Service units, the closest comparable online bibliography to *A Bibliography of the Grand Canyon and Lower Colorado River*. The URL for the Yellowstone work in 2021 was <https://lib-sierraapp.uwyo.edu/record=b3009633~S1> but the search link on that page was inoperative (accessed June 6, 2021); at the time that this table was first compiled the link was www-lib.uwyo.edu/db/ynp/default.cfm. The overall site is no longer accessible (16 June 2024). **Information in the remaining notes is as published in the original table and remains in the present tense.**
- B** The number of items in the *online* Grand Canyon–Lower Colorado River bibliography is taken from THE GRAND CANON (1st ed., 2012) but the opening webpage for that bibliography still counts several hundred additional citations that are no longer present in THE GRAND CANON; the disparity is explained elsewhere.
- C** Searches in the Grand Canyon–Lower Colorado River Bibliography are Boolean “AND” searches; they return only the citations that meet the conditions specified by the content entered into any number of search fields (thus for example, a search for author “Dutton” and keyword “Tertiary” will return only those citations by Dutton that have “Tertiary” in the search field). Searches by default also return citations that meet plural and grammatically similar words to those entered in a field.
Searches in the *Greater Yellowstone Bibliography* are Boolean “OR” searches; they return citations that meet *all* of the conditions specified by the content entered into any number of search fields (thus for example, a search for author “Lincoln” and subject “fumaroles” will return all citations authored by “Lincoln” *as well as* all citations relating to “fumaroles”).
- D** Keyword searches in the Grand Canyon–Lower Colorado River bibliography search any part of the citation; wildcard characters may be used. Keyword searches will return only those words that are part of the original citations; this is not a contrived “subject” field.
- E** In the *Grand Canyon–Lower Colorado River bibliography*, Subject Area allows user to restrict searches to any one of 32 separate parts of the bibliography (see the Content Guide in Volume 1, Part B, for their descriptions). (The default search method searches the entire bibliography.) User-selected words or strings will be returned only if that information is included somewhere in the full citation; there is at this time no separately contrived “subject” field in this bibliography.
In the *Greater Yellowstone Bibliography*, Subject Keywords are restricted to key words contrived by the compilers and placed within a separate “Subject Keywords” field of the database, although it will also search by default in the “Title” field.
- F** The default chronological search parameter for the bibliography is “all”. Searches may be restricted to year ranges or single years by changing the values in the beginning- and end-year fields; leaving the beginning-year field blank and the default current year in the end-year field (the default setting) searches the entire database. Specific searches for *only* citations with “no date” or dates undetermined may be conducted by using the adjacent check boxes.
- G** Although not immediately discernable to the online user, the Grand Canyon–Lower Colorado River bibliography may be *browsed* by leaving all fields of the search screen blank (except the default ending-year field). There is, however, no current capability to jump ahead to citations farther into the list, except by advancing page by page. The number of items returned per page may be changed to any number up to 999. Also, any one subject part of the bibliography may be browsed separately by selecting that part in the drop-down “Subject Area” field and proceeding as just indicated.
- H** Citations in the Grand Canyon–Lower Colorado River bibliography are cross-listed to the earlier print editions (1st ed., 1981; 2nd ed., 1990 and supplement 1993). Citations are also cross-listed to a number of standard bibliographical reference lists (as explained in the introductory section herein, [Cross-listings to Reference Lists](#)).
- I** See [Preceding and Continuing Editions](#) in the front matter herein.

Survey. A study of resources available for and from National Park Service units across America brings attention to how infrequently bibliographical compendia are assembled, much less promoted, for individual Park Service units. While tried-and-true library catalogues (online today) are one way to search for existing published bibliographies, a newer entranceway is through the websites both of Park Service units and their cooperating associations. Of course, this approach relies upon the administrative arrangement of a unit's website, whether sufficient time or resources were made available for creating it, and further, whether notice of research aids were made a part of it.

In 2009–2010 I conducted a study of principal bibliographical resources in the National Park System. While this survey will eventually be outdated, it serves as a benchmark for the breadth of publicly available resources during the first years when the greatly updated online Grand Canyon–lower Colorado River bibliography was available. At that time, the National Park Service's website listed 463 units in the system, from Abraham Lincoln Birthplace National Historic Site to Zion National Park.⁸ A few of the individual units with websites had bibliographies of selected references, but more than not these were just suggested-reading lists. Many of the small units did not even have a separate website presence. It will be interesting to renew the survey in the future, to detect substantial responses over time by National Park Service units to the value and utility of comprehensive bibliographical resources prepared by or sponsored by those units on behalf of the general citizenry and Park Service staff and administrators (although perpetually at the mercy of staffing and funding).

In 2010, fifty-two National Park Service units had affiliated cooperating associations. However, only twenty-seven were formal affiliates of park units; others were wholly independent of the park units they had adopted. The purposes of these organizations are to help support the educational, interpretive and outreach services of the units with which they work; most if not all are not-for-profit organizations that are affiliated under memoranda of understanding with the National Park Service. The websites of cooperating associations (if any) were also searched for online bibliographical guides or references to available guides. Grand Canyon Association was the only one with either a master bibliography or a link to one created by another organization. (Even the *Greater Yellowstone Bibliography* cited above was not mentioned on the websites for the park or its cooperating

⁸ By January 2017 (the latest listing found on the National Park Service website in April 2017), the NPS listed 417 units, divided among: National Battlefields (11), National Battlefield Parks (4), National Battle Field Sites (1), National Military Parks (9), National Historical Parks (51), National Historic Sites (78), International Historical Sites (1), National Lakeshores (4), National Memorials (30), National Monuments (87), National Parks (59), Parkways (4), National Preserves (19), National Reserves (2), National Recreation Areas (18), National Rivers (5), National Wild and Scenic Rivers (10), National Scenic Trails (3), National Seashores (10), and other designations (11); and adding Affiliated Areas (25), National Heritage Areas (48), National Trails System (30), and National Wild and Scenic Rivers System (43).

association, although in 2010 the Yellowstone National Park website included a general link to University of Wyoming Libraries data sources.)

The survey, summarized below, includes information on published bibliographies that were derived from databases of libraries' holdings. All other information came from the websites of the Park Service units.

Most of the "Published Bibliographies" are more than several decades old, and many are of the "gray literature" genre of limited-distribution documents that are notoriously difficult for researchers to be aware of and to find. Most of them are small in size or limited to a specific topic.⁹ Only a few are comprehensive bibliographies for the unit, embracing numerous topics. The published bibliographies for thematic Park Service units (such as historic-house or social-event sites) of course direct their users not so much to site resources as to citations about the persons or events that they commemorate. In some cases they by default are small compendia restricted by the historical or temporal perspectives of the units as well as by the vigor of later historical interests and research trends.

Park units that had website presence in 2009–2010 and contained some kind of bibliographical guide are also noted in the summary below. Those that had brief suggested-reading lists *only* are not indicated in the table. Websites that contained substantive bibliographical guides are marked; those that had "selected" bibliographies or superficial lists of just a few citations are specially noted. Additional notes indicate when bibliographical guides were specialized in any way, or sourced from a management document that was in that venue not meant to be comprehensive. None of the cooperating associations (except Grand Canyon Association—now Grand Canyon Conservancy) had bibliographical resources available through their websites.

Though dated now by a decade and the impracticality of creating a new survey that could be meaningfully compared to it (as mentioned above), the survey is likely to be not very much outdated anyway because of the general lack of progress in creating and promoting bibliographical resources. This is due in part to the increasing administrative demands placed on park units that are far more utilitarian and pragmatic within the oversight and operational needs of every unit; and similarly, the outreach services of the affiliate cooperating associations seek more engaging opportunities. Only THE GRAND CANON stands out as an exception.

⁹ See the separate commentary herein regarding [gray literature](#).

SURVEYS

2009–2010 Survey

BIBLIOGRAPHIES REGARDING NATIONAL PARK SERVICE UNITS AVAILABLE AS PUBLICATIONS OR THROUGH PARK UNIT WEBSITES

Name and Location of National Park Service Unit (highlighted names indicate units with affiliate cooperating associations*)	Printed Bibliographies†	Bibliography on Park Website
Antietam National Battlefield (Maryland)	•	
Big Bend National Park (Texas)	•	
Blue Ridge Parkway (North Carolina–Virginia)	•	
Canyonlands National Park (Utah)	•	
Cape Cod National Seashore (Massachusetts)	•	selected
Cape Hatteras National Seashore (North Carolina)	•	
Cape Lookout National Seashore (North Carolina)	•	
Carl Sandburg Home National Historic Site (North Carolina)	•	
Chaco Culture National Historical Park (New Mexico)	•	
Channel Islands National Park (California)	•	
Chattahoochee River National Recreation Area (Georgia)	•	
Chesapeake Bay Gateways Network	•	
Chickasaw National Recreation Area (Oklahoma)		selected
Congaree National Park (South Carolina)	•	Note 1
Crater Lake National Park (Oregon)	•	Note 2
Cumberland Island National Seashore (Georgia)	•	
Death Valley National Park (California–Nevada)	•	
Delaware National Scenic River/Delaware Water Gap National Recreation Area (Pennsylvania–New Jersey)	•	
Denali National Park and Preserve (Alaska)	•	
Devils Tower National Monument (Wyoming)		Note 3
Dry Tortugas National Park (Florida)	•	
Edison National Historic Site (New Jersey)		superficial
Effigy Mounds National Monument (Iowa)		Note 4
Ellis Island National Monument (New York)	•	
Erie Canalway National Heritage Corridor (New York)	•	
Everglades National Park (Florida)	•	
Fort Caroline National Monument (Florida)	•	
Fort Laramie National Historic Site (Wyoming)	•	
Fort Matanzas National Monument (Florida)	•	
Fort Raleigh National Historic Site (North Carolina)		•
Gateway National Recreation Area (New Jersey–New York)	•	

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Gettysburg National Military Park (Pennsylvania)	•	
Glacier Bay National Park and Preserve (Alaska)	•	Note 5
Glen Canyon National Recreation Area (Utah–Arizona)	•	
Grand Canyon National Park (Arizona)	•	Note 6
Grand Teton National Park (Wyoming)	•	
Grant-Kohrs Ranch National Historic Site (Montana)		Note 7
Great Basin National Park (Nevada)	•	Note 8
Great Smoky Mountains National Park (Tennessee–North Carolina)	•	
Guadalupe Mountains National Park (Texas)	•	
Gulf Island National Seashore (Florida–Mississippi)	•	
Harpers Ferry National Historical Park (West Virginia)	•	superficial
Harry S Truman National Historic Site (Missouri)		Note 9
Hopewell Culture National Historical Park (Ohio)	•	
Ice Age National Scenic Trail (Wisconsin)		superficial
Independence National Historical Park (Pennsylvania)	•	
Indiana Dunes National Lakeshore (Indiana)	•	
Inupiat Heritage Center (Alaska)	•	
Isle Royale National Park (Michigan)	•	
Jamestown National Historic Site (Virginia)	•	selected
Jewel Cave National Monument (South Dakota)		Note 10
Kalaupapa National Historical Park (Hawaii)	•	
Katmai National Park and Preserve (Alaska)	•	
Kenai Fjords National Park (Alaska)	•	
Keweenaw National Historical Park (Michigan)		selected
Klondike Gold Rush National Historical Park (Alaska)	•	
Klondike Gold Rush–Seattle Unit National Historical Park (Washington)		•
Kobuk Valley National Park (Alaska)	•	
Lake Mead National Recreation Area (Arizona–Nevada)	•	
Lassen Volcanic National Park (California)	•	
Little Bighorn Battlefield National Monument (Montana)	•	
Lowell National Historical Park (Massachusetts)		selected
Lyndon B. Johnson National Historical Park (Texas)		Note 11
Mammoth Cave National Park (Kentucky)	•	
Manzanar National Historic Site (California)	•	
Marsh-Billings-Rockefeller National Historical Park (Vermont)		selected
Mesa Verde National Park (Colorado)	•	
Minidoka Internment National Monument (Idaho)		Note 12

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Minute Man National Historical Park (Massachusetts)	•	
Minuteman Missile National Historic Site (South Dakota)		Note 13
Mojave National Preserve (California)		partial
Monocacy National Battlefield (Maryland)	•	
Morristown National Historical Park (New Jersey)	•	
Mount Rainier National Park (Washington)	•	Note 14
Muir Woods National Monument (California)	•	
Natchez Trace Parkway (Alabama–Mississippi–Tennessee)	•	
National Park of American Samoa	•	Note 15
New Orleans Jazz National Historical Park (Louisiana)		selected
Nez Perce National Historical Park (Idaho–Montana–Oregon–Washington)	•	Note 16
Noatak National Preserve (Alaska)	•	
North Cascades National Park (Washington)	•	
Ocmulgee National Monument (Georgia)	•	
Olympic National Park (Washington)	•	
Organ Pipe Cactus National Monument (Arizona)	•	
Padre Island National Seashore (Texas)	•	
Pipestone National Monument (Minnesota)	•	
Point Reyes National Seashore (California)	•	Note 17
Pony Express National Historic Trail (various states)		Note 18
Redwood National and State Parks (California)	•	
Rio Grande Wild and Scenic River (Texas)	•	
Rocky Mountain National Park (Colorado)	•	Note 19
San Francisco Maritime National Historical Park (California)		Note 20
San Juan Island National Historical Park (Washington)		Note 21
Santa Fe National Historic Trail (various states)		selected
Santa Monica Mountains National Recreation Area (California)	•	
Sequoia and Kings Canyon National Parks (California)	•	
Shenandoah National Park (Virginia)	•	Note 22
Statue of Liberty National Monument (New York)	•	
Stones River National Battlefield (Tennessee)		Note 23
Tallgrass Prairie National Preserve (Kansas)		Note 24
Trail of Tears National Historic Trail (various states)		selected
Tumacácori National Historical Park (Arizona)	•	
Tuskegee Institute National Historic Site (Alabama)	•	
Valley Forge National Historical Park (Pennsylvania)		selected
White Sands National Monument (New Mexico)		selected

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Whitman Mission National Historic Site (Washington)		Note 25
Wind Cave National Park (South Dakota)	•	
Women’s Rights National Historical Park (New York)		Note 26
Wrangell-St. Elias National Park and Preserve (Alaska)		Note 27
Yellowstone National Park (Wyoming–Montana–Idaho)	•	Note 28
Yorktown Battlefield (Virginia)	•	
Yosemite National Park (California)	•	
Zion National Park (Utah)	•	Note 29

NOTES (current at the time of the survey, 2010); see remarks at the beginning of this section regarding the lack of updating. This study is nonetheless still instructive.

* Cooperating associations are noticed here only when they are linked to, or otherwise advertised by, the *Park Service unit’s web pages*, or if the websites of the cooperating associations note their sponsorship of or advertise bibliographical resources; this information, when present, is included in pertinent Notes (below). It is likely that other resources have been overlooked as the result of undersupported webpage development for some Park Service units or cooperating associations, which may reflect more upon administrative issues for agency outreach rather than a complete absence of bibliographical resources.

† *Printed* bibliographies have been located through library catalogues online, including the library source list for the National Park Service. Many are the result of Depression-era federal work projects, or are independently compiled works; none apparently are as comprehensively arranged as is the current bibliography.

All web access to National Park Service units is through the NPS main page, <http://www.nps.gov>

Enumerated Notes

Bibliographies noted as parts of management plans and other administrative reports are limited in coverage.

1. Research bibliography in progress
2. Crater Lake Natural History Association is the cooperating association for the national park and Oregon Caves National Monument. The Crater Lake Institute, which is not an affiliate of the national park nor is formally a cooperating association, promotes through its website a modest Research Bibliography of 300 titles in 16 subject areas. Unaffiliated resources such as this one may be noticed for other park units. When studies are made of formal park relations with cooperating associations attention should be held to distinguish between informal and formal relationships with the park
3. Website refers users to a 2008 published history of the national monument that includes an “extensive bibliography”
4. Bibliography included as part of Historical Resource Study
5. An online bibliography is available for the subject areas of natural history and environment, and for recent research; abstracts and public-domain articles can be downloaded
6. Extensive online bibliography available through cooperating association; park website includes some bibliographical entries under its natural science sections
7. Bibliography included as part of Historical Resource Study
8. Website cites a 1993 annotated bibliography of biological collections from the national park
9. Bibliography included as part of Historical Resource Study
10. Bibliography included in Cultural Landscape Report
11. Website refers to the park holding a “complete natural resource bibliography”
12. Bibliography included as part of Management Plan
13. Bibliography included as part of Historical Resource Study
14. Website includes a facsimile of 1929 park article that notes, “a complete bibliography of literature on Mount Rainier has been prepared”

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15. The American Samoa Digital Library includes a comprehensive bibliography; links to University of Hawaii, Pacific Islands Coral Reef Program Environmental Reports and Publications—American and (western) Samoa, by the park’s Inventory and Monitoring staff; comprising thousands of citations, with PDF downloads for many of them
 16. Website contains an external link to U.S. Forest Service Nez Perce annotated bibliography
 17. Website contains an external link to the Bibliography of the Tomales Bay Biodiversity Inventory
 18. Bibliography included as part of Comprehensive Management Use Plan
 19. Website contains an external link to University of Northern Colorado’s bibliography for Rocky Mountain National Park
 20. Website includes two research bibliographies related to park themes
 21. Website includes a “Pig War Bibliography”
 22. Website refers to a Natural Resources Bibliography, which has not been located
 23. Bibliography included as part of Cultural Landscape Report
 24. Bibliography included as part of General Management Plan
 25. Bibliography included as part of Park History document
 26. Bibliography included as part of History Trail Feasibility Study
 27. Bibliography included as part of Cultural Landscape Report
 28. See [above](#) [p. 530] for remarks concerning the Greater Yellowstone Bibliography online via the University of Wyoming Libraries
 29. Bibliography included as part of General Management Plan
-

There is no significant correlation between the physical size, visitation profile or subjective “fame” of a Park Service unit and the presence of bibliographical resources produced by Park Service or other government personnel or by a unit’s cooperating association. Some units for which one would expect to find at least an old bibliography do not seem to have such documentation, or at least none are prominently noted by that unit. Possibly, the resources available to the me had not captured information about pertinent resources, meaning either that such documents for those units may be all the more obscure or that the units do not place such documents among their principal resources.

It seems surprising that so many of the smaller units have bibliographical resources, especially published documents even if they are brief and limited in scope. This may be due to the limited number of general resources that pertain to these small units, making it easier to make such compilations. This may also reflect short historical timeframes or the relative obscurity of (hence fewer resources for) the persons or events they commemorate. Or it may be due to the independent diligence of a bibliographer who contributed the work to the unit.

Park website-based bibliographical resources, too, are largely selective and very limited. They also may not be specially prepared works, having been borrowed from resource and management documents, which in turn are not meant to be bibliographically comprehensive.

As noted above, only the *Greater Yellowstone Bibliography (GYB)* online was truly comparable to THE GRAND CANON, at least in numbers of citations and breadth of coverage. The *GYB* was, however, not sponsored by either Yellowstone National Park or its cooperating association; it was available only online with no earlier printed editions, and it did not have an alternate digital layout that could serve as a printed publication (like THE GRAND CANON here). The two online resources (*A Bibliography of the Grand Canyon and Lower Colorado River* and *GYB*) also returned search results in very different manners.

THE GRAND CANON thus is a unique, utilitarian research tool for users like historians, scientists, and biographers, even other bibliographers. It also serves resource managers and administrators of land-oversight agencies and other administrative entities who have oversight of units that lie within the geographic bounds of the greater Grand Canyon region and the lower Colorado River. The managers and administrators of other, affiliate agencies like those for waters and airspaces likewise will find THE GRAND CANON a source of documentary information.

In all, THE GRAND CANON documents past activities conducted within these geographic and administrative areas. It is the evidentiary record of human perspectives and civil uses of the resources there, and of official activities relating to the administration of those resources. It embraces pragmatism and philosophy alike, through widely different approaches—the views and avocations of domestic and foreign travelers; the concerns of civic organizations, citizen action groups, educational institutions and corporate entities; and the duties of branches of government and official agencies.

The earlier printed [editions](#) of THE GRAND CANON (as *Bibliography of the Grand Canyon and the Lower Colorado River*, 1981, 1990, and 1993) are greatly outdated, but the 1990 second edition is still serviceable because it includes introductory essays for each thematic part of the bibliography. The online edition (first posted 2000) was significantly revised but after mid-2015 experienced issues that foretold its technological life was short; and it was discontinued in October 2021. THE GRAND CANON, in its digitally word-processed format (here, in PDF), contains the same bibliographical content, far more updated and cleaner in presentation, but, unlike its online database predecessor, with the familiar layout of a traditional bibliography. THE GRAND CANON is, further, modernized and made more useful with internally placed digital hyperlinks.

COMMENTARIES

[HYPERLINKS—POSITION CURSOR ON ANY LINE AND ACTIVATE TO JUMP AHEAD]

“A necessary nuisance”—
The Traditional Bibliography in a Digital Age

How Many Voices Unheard?
The Choir of Gray Literature in Bibliography
with examples from THE GRAND CANON

COMMENTARY



Elliott Coues (1842–1899)

“A necessary nuisance”— The Traditional Bibliography in a Digital Age

by Earle E. Spamer

WHEN ELLIOTT COUES died it was the closing time of an era of scholarship when some practitioners seemed to know everything. Coues (pronounced *cows*) was one of these scholars whose experiences and capabilities crossed into a number of widely different subject areas. He is best known for his prodigious works on American ornithology, but his studies went much further, including original research in natural history and medicine, editing critical editions of Western American exploration, and compiling bibliographies; even essays on spiritualism. Among his indefatigable labors that have been lost is a three thousand-page manuscript on the birds of Arizona, which he temperamentally tossed purposely into the fire.¹ Much of his professional career as a physician with the U.S. Army found him stationed far away from the best (or sometimes any) libraries. To have accomplished so much by himself, even though he was constantly in touch with many correspondents wherever he was, is astonishing. His bibliographical work is of such

¹ For a complete biography on Coues, see Paul Russell Cutright and Michael J. Brodhead, *Elliott Coues : Naturalist and Frontier Historian* (University of Illinois Press, 1981), 509 pp.

volume that it alone could have been a lifetime’s work; and this was conducted, one must remember, without the benefit of modern digital resources either as sources or for preparing manuscripts.

The art of bibliography has been viewed, particularly in the later part of the 20th century and on to today, as an indulgence of those with special interests and for limited audiences, perhaps even a pastime of puzzling or suspect worth. Used by few, most publishers today see bibliographies as uneconomical. And indeed, why bother with jotting down the authors, titles, and publishers of things that may already be awaiting online? Why bother preparing a publication that will be out of date even before the printed pages are bound? It is a dramatic shift of opinion from a century earlier, when bibliographies were reference tools expected to be found—and used. Substantial tomes, some of them as multiple volumes, were issued by publishers worldwide; awaited for, purchased, cataloged, and worn out by librarians and researchers.

Yet even in Coues’ day the process of bibliography bore the stigma that it is not scholarship, at least not in the sense that it contributes new insights to a given field of study. Perhaps; because a bibliography is not usually a product that provides new interpretations or criticism of historical works and scientific hypotheses. Only the truly comprehensive bibliography of a broadly recognized field of scholarship (Americana, for example), when it contains authoritatively critical commentary on the items it cites, may provide contextual contributions toward understanding in its field. The various editions of Henry R. Wagner and Charles L. Camp’s *The Plains and the Rockies* are a fine example, to single out but one title.²

Few users “read” a bibliography; it is a reference work, used piecemeal like a dictionary or like a thematic concordance.³ Sometimes it is a biographical aid about a certain author, or it is a bookseller’s or collector’s key to an author’s works. These are its immediate uses; yet, what often is unrecognized in a ponderous list of published works is that it can harbor much of utilitarian value.

At its usual and most basic, a bibliography embraces a chronological and literary history, a guide to tangible objects that are stored somewhere and, there, they are available for use. Each item can be a point for source material, or many items may be a foundation for evaluation, annotation, and enhancement by researchers. If one takes the time to read through portions of a comprehensive bibliography, it brings attention to what has already been done (as expected) but it can also reveal to those who are knowledgeable in the

² The last edition is Henry R. Wagner and Charles L. Camp, *The Plains and the Rockies : A Critical Bibliography of Exploration, Adventure and Travel in the American West, 1800-1865*, revised and enlarged by Robert H. Becker (John Howell—Books, San Francisco, 4th ed., 1982), 745 pp.

³ But see also my remarks in the [Preamble](#) for this volume.

subject problems and areas of neglected work. A thorough reading is also surely bound to draw one’s attention to many surprising, peculiar, even important items that may otherwise go unnoticed even by diligently precise researchers. And, as a caveat that bears repetition, one which is empirically proved, the work on a bibliography is never done, even when one thinks little more can be done. A bibliography, updated, emended and corrected, always bears fruit.

Indeed, how *does* one “read” a bibliography? Not so much as one would read a story, accumulating the thoughts of paragraph after paragraph. Instead, it is read as paragraphs (citations) by themselves, each to be dismissed or acknowledged as useful or interesting, yet as with conventional reading with some anticipation for what may come. All the while, one does begin to grasp the idea that there is a lot of information that is beyond the simple list of authors, dates, and publishers.

I argue that specialized and truly comprehensive research perspectives can be gained, and administrative needs met, by using bibliographies that are, or claim to be, comprehensive. These are the works that have been assembled by thoughtful evaluation, essentially by hand; they are not shopped out from queries run in existing databases whose construction and content may not be fully suited to the work being done. There are, sadly, many examples of computer-generated reference lists from the third and fourth quarters of the 20th century; often they were unaesthetically reproduced in facsimile, having been generated by what were called line printers.

One may suppose, correctly, that in earlier times the frequent users of bibliographies understood how such works could be mined for information beyond the simple listing of things that had been published. I, however, infer from having worked with newer scholars that this kind of resource is becoming forgotten knowledge; some of these researchers were unaware of the diversity (even the presence) of extensively detailed bibliographies and how such works record the progress of and access to scholarship in the pre-digital world. This is unkind as a generalization; there are many researchers who do not fall into it, but it is an empirical observation I have made of others.

If more of the traditionally published (paper) bibliographies from years past were digitized, perhaps the awareness of such tools would be less overlooked today, perhaps even less shunned as research tools. However, many of these bibliographies have escaped the major efforts of digitization, likely because of their obscurity or, for some, that they remain under copyright. It’s probable, too, that some of them are not digitized because it does not seem worth the effort; there is a perception of their limited, antique kind of usefulness, not to mention dated content. A kind of emphasis against bibliographies may be imposed as well by modern publishers, who see in bibliographies only whispers of market share. But in the end, it is a user-dominant perception of bibliographies that occludes them;

they provide low returns to scholastic or administrative needs. Hand-conducted searches such as those that would be done with conventional bibliographies takes time when the resource is dauntingly large, a prospect that is not always in the immediate best interest of hurried researchers and, in particular, administrators who work with deadlines in fiduciary straits. Still, these resources exist; and they *can* be used to greater effect than for which they are given credit.

The power that can drive re-recognition of bibliographies can come from the very medium that threatens them to begin with: developments in (what today is called) artificial intelligence. There is coming a time, which already has begun to appear, when computers will have the ability to analyze what the user *expects* to find for application to the work at hand. The major advance in this area will be when they do not err with obvious mistakes or by finding glaringly unrelated items; a demanding expectation from our viewpoint today. *And* a digital resource’s own responses (in some fashion we can only wish for today) will have to be able to *contextually* retrieve or flag material that the user may not have known will be useful. We are not yet there, despite the promises and implementations of interpretive software such as that utilized by commercial developers like Google (to use one example⁴). Yet who even a generation ago could have anticipated the things we use today? The abilities I envision are likely to come, and they could well toll the death bell for bibliographies. In the meantime (and for quite a while yet), we have a world filled with available resources, paper and digital alike, and to overlook the power of one over the other is an unfortunate tendency. Encouraging them to work together will improve the utility of future resources for researchers.

Notwithstanding its potential as the foundation of future ambitious projects, the comprehensive bibliography is—and should be promoted as—the documentation for everything that has been published (and thus available) within the constraints of its scope and content. It is further an administrative account, documenting activities as revealed through publications produced in the execution of official duties, and documenting the conduct of those who carried out that work.

But—this is important—students new to a field of work should see that a pertinent bibliography is a guide to previous research, opinion, criticism and commentary; a body of literature that expresses the development of themes that pertain to the subject; and a chronology of changing research focuses over time. The astute student may also seize from

⁴ Jean-Baptiste Michel, Yuan Kui Shen, Aviva Presser Aiden, Adrian Veres, Matthew K. Gray, The Google Books Team, Joseph P. Pickett, Dale Hoiberg, Dan Clancy, Peter Norvig, Jon Orwant, Steven Pinker, Martin A. Nowak, and Erez Lieberman Aiden, “Quantitative Analysis of Culture Using Millions of Digitized Books”, *Science*, Vol. 331 (January 14, 2011), pp. 176-182 + Supporting Online Material available at www.science.mag.org/cgi/content/full/science.1199644/DC1, 88 pp. [accessed 10 February 2011]. [Updated link to this paper (28 September 2018): <http://science.sciencemag.org/content/331/6014/176>; accessed again 15 November 2024.]

a bibliography ideas of things that are problematical and discern things that seem not to have been done or have not been adequately explored—prime focuses for theses, dissertations, and future professional research for them and for their students in turn.

MOST RESEARCH MATERIALS today still are produced in paper formats and, pragmatically, will remain so for a long time to come. Digital materials now add to the volume of available research material, but despite some that have widespread use and attention they pale against the total that is not digital. The digital forms may someday, probably, dominate libraries; but will they represent the greater part of the whole of all available literature?

The present-day Google Books effort, for example, is both laudable and becoming indispensable, especially for materials that are now in the public domain. There are other such projects, each with specific focus, but the Google project is encouragingly broad in scope and incredibly productive. Many obscure titles and source materials come to light because of its search functions; this much is obvious. It is a very powerful tool for analyzing cultural trends, even though it is restricted to the relatively “few” millions of items already digitized. Yet, Google Books is not without its recognized flaws; for example, misaligned pages lacking parts of their content, pages warped, miscentered and unreadable due to the operator’s mishandling, pages obscured by the operator’s hand, the procedural omission of fold-out pages and other things that deviate from the single-page format, and discordant, even useless, publication titles miscited in the Google Books metadata. Utilitarian goals have superseded craftsmanship. Furthermore, anything that fails to replicate the original publication may force one to search for an original copy of the work anyway, which is counterintuitive to the conservational intentions of digitization.

One may envision a day when book scanning is accomplished in the same fashion as, for example, non-invasive three-dimensional investigations inside the human body, like Magnetic Resonance Imaging. The idea is every bit as preposterous as the idea of MRIs would have been to our grandparents when they were young adults, or for that matter, X-rays to our generations of greater-grandparents. The medium is different, and thus the methods will differ from imaging organic bodies, but suppose the technology can be invented, just as were X-ray and MRI machines. These inventions would view the three dimensions of pages, compensating for thickness, warping and crenulations; the layers of formed lines of ink also in three dimensions, in one direction on one side of a page and vice versa, detecting the differences between impressed print blocks and effectively flat-surfaced offset printing; and detecting the chemical qualities of colors of those inks, while distinguishing drawings from half-tone illustrations and lithographs—and so on! The brute processing power, too, may have to await the next generations of what we still quaintly refer to as “computing” technology; for example, the foretelling promises of

“quantum computing”. Taken a step further from the printed page, we may envision scanning the most fragile of scrolls, never unrolled, imaged and digitally (mathematically) “flattened”. But these are accomplishments for the future. Right now we work in a research and reference world partly digital and, a page at a time, still mostly paper. The guides and aids are ever-increasingly digital, and all the processes and materials will move more toward it.

By and large, in major research libraries digital formats are not *replacing* that which is already available in paper. Resources published in inkprint remain a principal research tool, copies of which are usually obtainable in several or many locations. In judiciously maintained collections, the originals of those items that have been digitized will be kept in addition to the accessible digital copy. Regretfully, some libraries must respond to the limitations of finance and physical storage space by retreating from the conveniences of shelf access, banishing “less used” holdings to remote storage locations or disposing(!) them. The general philosophy is that such material is a burden to maintain and is also “available elsewhere”. That presumption holds that *other* institutions *will* gladly carry the burden. It is a fatalistic approach that raises roadblocks along researchers’ paths. How non- or inconvenienced-access affects the research routines of scholars is so far as I know not well studied; and whereas the determined researcher will one way or another find what is needed, how many will not have the financial, temporal or temperamental resources to pursue some items, then proceed without them? Productivity and scholarship thus suffer.

For the time being, there *is* a good chance that everything that is cited in a bibliography of published materials will be accessible somewhere. One may correctly surmise that digitization is improving access to some materials, even from the comforts of one’s home or office. But what of material that is uniquely digital, like the nebula of web-posted materials? The web material may be instantaneously accessible now, but there lingers uncertainty whether, citations or not, web-based resources will be accessible at *any* time in the future. If, say, a citation for a publication printed in 1900 is discovered in 2150, there is a reasonable expectation that a copy of that work will be found somewhere; not so with web-based products, which may be gone tomorrow, in five years, or any time, at the blink of an eye. So-called “archives” of past websites are useful but they are limited by non-comprehensive selection, inoperative hyperlinks to material that is no longer attached, and the technological liabilities of the very medium they strive to archive. Moreover, web archives are endangered by the very fact that they themselves also remain—ephemerally—in the web environment.

Web resources can absolutely disappear—every “copy” as it were—at the whims of website compilers who take away posted documents; website managers and tinkerers who change the electronic location of documents, moving, adding, revising, and disposing at

will; and website hosts who may move to new internet locations, rename themselves, or close down. In every case the loss of replicable access points, or the outright loss of material, is an electrifying travesty; so much so that many people probably cannot fathom the ramifications should major portions (or the whole of!) the web collapse. Paper, for the long foreseeable future, will continue to serve as a hedge against loss of information.

A web-link citation with no actual linked material relocatable, accessible, *or* surviving is pointless; like the call-number of a library book irretrievable or with no copies extant. We might be fortunate, in such instances, to discover that this kind of “light gray literature” had been captured here and there, digitally or as hardcopy printouts in other locations and collections.⁵ But discovering these uncharted islands in the vast archipelago of personal and institutional collections may be only serendipitous; certainly not assured. And further, such survivors may represent only a fraction of the original set of documents or web pages.

The dramatic drive toward routine computerization that took place in the later part of the 20th century limned a constellation of large digital bibliographical databases. Researchers now may find in a digital search individual items that meet certain selected parameters. The selection of parameters is partly that of the inquirer in structuring the query, but it also relies on the catalogers who, as they always have even in the days of card files, have made selective and professional assumptions as to the pertinent subject and content of a work—this to allow researchers to locate “all” works applicable to their present tasks even though the method does not anticipate those researchers who have specialized or unusual focuses.

The digital databases are only as good as they are designed, of course, but there are many good and well-used ones in fields of study from medicine to ecology to sociology, and so on. There are, too, the master files of library holdings like OCLC and WorldCat, or the profound but still-limited Google Books content-searchable digitization effort, although all are restricted to those institutions and organizations who participate. Then, too, there are the online catalogues for individual libraries. Or, we may turn to numerous commercial content-indexing services, some of which have been adopted by academic libraries, like JSTOR or EBSCO MegaFILE. We are thus subservient to the whims of catalogers, whose professionally directed assumptions establish the subject content of an item and thus the retrievable citations from an individual subject query. Likewise, one is also at the mercy of authors and editors, who may not craft informative titles and subtitles. One may wonder after a digital query has been made, what has been missed in the returns?

⁵ Earle E. Spamer, “What a Woven Web: Archives, Websites, and the Coming Legacy of “Light Gray Literature”, *Provenance*, Vol. 20 (2002) [2004], pp. 59-71 (<https://digitalcommons.kennesaw.edu/provenance/vol20/iss1/8/>; last accessed 15 November 2024).

Fortunately, the whole-volume digitization efforts now available online are a marvelous means of finding key words or “strings” of words within publications, right to the page. This steps by the functional purpose of a bibliography, yet at the same time it does not allow for the grouping of works such as that provided by bibliographies. Right-to-the-page searches are a different sort of tool; they do not replace bibliographies. But the full-volume digital products have their own issues, not the least of which is faulty optical-character indexing, which is a technological issue that can be improved.

One of the perplexing problems of regular digital querying is receiving spurious citations that have nothing to do with what is expected, even though the structured query does correctly hit upon homonymical words or strings. As cases in point, a search for “Grand Cañon”—hence also “Grand Canon”, a common typographical permutation used in the late 19th and early 20th centuries—will yield citations about:

- 1) ecclesiastical commentary (as in grand canons of scripture that include lists of authoritative works, which one may see simplistically as “rules” of faith or conduct)
- 2) clerical grand canons (canons being a body of clerics who live according to rules and are self-ruled amongst themselves)
- 3) canonical affairs generally (as in references to something being a “grand canon” or [again] “rule” for some aspect of human conduct; for example, the “grand canon of writing” or a “grand canon of law”)
- 4) the history of artillery (*grand canon*, “large cannon” in French⁶)
- 5) music (“grand canon” being a definitive set of musical pieces)
- 6) mathematics (a “grand canonical ensemble” is a representation of thermodynamic states in statistical mechanics)
- 7) typography (“grand canon” being a style of large point size, one not precisely defined, also known as “double canon”; examples have been noted at 44 and 48 points)⁷

⁶ When in French literature the term is capitalized “Grand Canon”, in pertinent contexts it is a direct translation of “Big Cañon” in English, a former name for the Grand Canyon of the Colorado River. It is thus most usually in reference to published reports from the J. C. Ives expedition of 1858, which described and portrayed “Big Cañon”. There is, too, published account of the Place au Grand Canon in Ghent, Belgium, the location of an “enormous cannon” named *De dulle Griete*, or Mad Margery, manufactured in 1452 (John Murray, *A Handbook for Travellers in Holland and Belgium*, John Murray, London, 19th ed., 1876, p. 135).

One can be misled, too. For example, the round-the-world memoir by Le Comte de Beauvoir (Ludovic Hébert, the marquis de Beauvoir), *Pékin, Yeddo[,] San Francisco : voyage autour du monde* (Henri Plon, Paris, 1872 and numerous reprintings and editions), makes reference to “le canon du Colorado” followed by several passages replete with exclamation marks (pp. 265-266). One could mistake this, without reading (or understanding) the whole, for a visit to Grand Canyon, which of course it cannot be since it is in a passage dated from May 19, 1867. The reference is actually to the firing of the cannon of the ship *Colorado* upon leaving port in Japan. Thus, blind searches do not necessarily lead to proper references to Grand Canyon as “Grand Canon”.

⁷ See also for example, *Linotype Sabon Next. Part 1. Roots and Design Processes* (Linotype Library GmbH, Bad

8) references to “Le Grand Canon”, misspelling of the Civil War memoirist, Le Grand Cannon [Le Grand Bouton Cannon] or the 20th century novelist Le Grand Cannon (and possibly others with this name)⁸

9) references to physiographic features named “Grand Cañon” that are not the familiar “Grand Canyon”⁹

10) generic terms of a physiographic feature as “a grand cañon” or “a grand canon”.

Discerning which among all these finds is pertinent to a task at hand is up to the user; no software can do that for them without some direction from the user.

Still, the preponderant usefulness—and precision—in these master databases is a wonderful resource. They would be missed if they did not exist. Yet they did not exist a couple of generations ago. All that were available then were printed, eye-searchable bibliographies, only occasionally indexed or annotated, and, of course, ubiquitous card catalogs—each a Version 1.0 of its digital descendants.

IF ANYTHING (within reason) can be discovered quickly in a lightning storm of digitally cataloged publications, why in the world should anyone fall back on a broadly focused bibliography that laboriously and slowly plots decades or centuries of publications in a serialized, print-like format, one plodding, discrete item at a time?

The use of conventional, inkprint bibliographies is contrary to the instant matters-at-hand ethos that has assimilated an “online”, “wireless” generation. The big picture may be superfluous, and from such a view a bibliography may invoke ideas of wearying overextension, or at its cuttingest, quaint irrelevance. Yet the reason a comprehensive bibliography can still stand firm in spite of its asynchrony with sped-up modern research methods is that its compilation authoritatively audits observations and work produced within the subject it embraces. It is the evidentiary record, visible as a whole, of the work of individuals, agencies, and organizations. It is responsive, even if slowly, to unique lines of inquiry or to administrative needs that cannot rely on presupposed, standardized categories of indexing nor solely upon structured queries (the rigor of and results from which may and do vary).

It is the *content* of a bibliography that brings its attention to users, less so the composition of its citations. While many bibliographies are compilations of books only,

Homberg, 2002), p. 11.

⁸ Note must be made also of one Le Grand Canon Griswold, a member of the Class of 1903 at Princeton University. (*Directory of Living Alumni of Princeton University*, Princeton, 1911, p. 137.)

⁹ See also Volume 3 of THE GRAND CANON, *Grand Canyon, Colossal Mirror* (access through <https://ravensperch.org>.)

others may compile magazine articles (perhaps just from the 19th century, for example). The permutations are numerous, each utilitarian within its scope and intended audience. Rarer are those bibliographies that canvas multiple source types (books, magazines, pamphlets, etc.) or multiple media types (printed, audio, audio-visual, etc.) or are temporally comprehensive, spanning centuries. The modern digital databases are similarly focused; they have selective content depending upon their intended coverage and audience. The most attractive aspect of the digital forms is that they are broadly accessible and take up no shelf space, though they are susceptible to digital decay and non-migration to revised software and updated hardware. But most weakly, the digital *databases*, unlike traditional bibliographies, do not lend themselves to browsing.

Traditional print bibliographies can be concisely packaged or cumbersome, even unwieldy in multiple volumes. They can be complex in ways that some questions asked of them can be answered only by flipping back and forth in the volume, or between volumes, fingers, papers, or scribbled notes holding places. While some users find this kind of basic research fascinating and productive, others find it arduously counterproductive, thus they rely more on searchable digitized bibliographies or databases. But it depends upon how fine a focus the user has on the project that is in progress, and how deeply into time that project delves. Many older bibliographies are not digitized, and the large electronic databases may be selective in the time range they cover. Many good and surprisingly useful resources just are not yet available digitally; and perhaps they never will be.

The kinds of pertinent information sources—citations, in the parlance of bibliographies—that catch a researcher’s attention cannot be assembled (yet) by a computer program that responds to a structured query. The broad palate of raw data is understood only by the researcher; it is not delivered in an individual citation or structured group of queries. With the raw data the researcher is informed of sources that will deductively contribute to, argue against, or ratify hypotheses and opinions, or occasionally will even alter long-standing axioms in a field of study. The broad palate contributes toward the construction of arguments and helps draw up the support used for critical commentaries and unique conclusions.

To use digital databases to compile sets of data for supporting arguments, or for making meaningful evaluations of scholarly questions, requires a prodigious amount of data-gathering. For example, Stephen J. Pyne in *How the Canyon Became Grand*¹⁰ used the 1990 print edition of Earle Spamer’s *Bibliography of the Grand Canyon and the Lower Colorado River*¹¹ to collate statistics about the kinds of publications that had been

¹⁰ Stephen J. Pyne, *How the Canyon Became Grand : A Short History*, (Viking, New York, 1998), 199 pp.

¹¹ Earle E. Spamer, *Bibliography of the Grand Canyon and the Lower Colorado River : From 1540, Grand Canyon Natural History Association Monograph 8* (1990), and supplement, 1993. This is the last print edition of this bibliography.

produced during the previous century and a half. Lacking a database format at that time, the bibliographical information Pyne sought was tallied by eye and hand, somehow an appropriately traditional use of the bibliography in a time which even then was rapidly embracing digital formats.

This brings up an important point, one which takes the step beyond usual bounds of academic curiosity, stepping toward pragmatic inquiry. Perhaps those who demand the most information, but in discrete packets, are administrators, of whom one may never predict what will be needed or how a question will be framed. In the case of a national park, for example, a resource manager there might at one time need to account for every bit of publicly reported entomological research conducted in the park and the adjacent federal forest lands, but only since the creation of the national park. At another time, a query may be had about published discussions of the park’s sewerage facilities and water recycling. Polling library and special-serials databases might provide some answers quickly, but there are many catalogued citations that will overlook a component contained in a larger, unrelated work because it is not a cataloger’s duty to relate the detailed content of a work.

Two further points are that some works never have been catalogued into the modern databases, and no bibliography is a “master index” to *everything* contained in the publications it cites. A comprehensive bibliography can, however, pay its dues in a far-reaching administrative sense by revealing more than may be available anywhere else. True, it may not be the administrator who does the work, but the data delivered will be used to administrative effect. And in the objective sense of administration, the worst thing for any administrator is to be not informed.

If a researcher will wile the time to peruse a large bibliography just once, they will find works that would have been overlooked by a database query. There also are adjunct references that may not be directly related to the inquiry but which will have some ancillary application to research then underway—and, if not to the research then in progress, then serendipitously to another task the inquirer is working on or contemplating, perhaps even to inspire a whole new project. These are things that will not be delivered by querying databases. Only a *user* has the knowledge to recognize the things that do not fit a predetermined, pre-analyzed set of criteria. And by critically reviewing an entire bibliography, assuming it is reliable within its stated scope, a researcher will have the comfortable assurance that a substantial portion of the work previously done will have come to his or her attention.¹²

¹²To illustrate how a database search compares to a reading of the same page in a monographic format, consider the kinds of returns one would get from a query about the short story, “El Gran Cañon”, by the Dutch writer F. C. Terborgh (a pseudonym of Reijnier Flaes), which pertains to a Spanish expedition to the Grand Canyon in

It is similar in scientific or historical research. Only the researcher has the expertise to recognize the things that are useful for the study at hand. Running a database query will return far different results than a more laborious, time-consuming “read” of a bibliography. This is nowhere more important than to the student who is new to a field; there is no other place that will provide, in one source, a view of all that which has been already done—and I do not refer to a “selective” view of the “most important” things even though such overviews are themselves important and useful. I am quite at a loss as how to advertise the benefits of a comprehensive survey in lieu of the snap-of-the-digital-fingers return of an answer that, outwardly, seems to be comprehensively satisfying by itself. From resources that claim to include “everything”, a user will gain a better perspective of the range of what Benjamin Franklin called the “useful” and the “ornamental”¹³; or more pointedly, the

“1527”. The story is unmistakably, loosely based upon Francisco Vazquez de Coronado’s *entrada* in search of the Seven Cities of Cibola and Pedro de Castañeda’s account of the visit to Grand Canyon in 1540. If one’s citation in hand referred to the English translation that appeared in the 1945 compendium of Dutch writing, *Harvest of the Lowlands*, one would retrieve from a database only:

Terborgh, F. C. [pseudonym] [Flaes, Reijnier]

- 1945 7.994 *El Gran Cañon.* (Jo Mayo, translator.) *In*: Greshoff, Jan (compiler, ed.), *Harvest of the Lowlands : an anthology in English translation of creative writing in the Dutch language with a historical survey of the literary development.* New York: Querido, Inc., pp. 478-489. [Translated from Terborgh; source text not identified. This is an imaginative retelling of some events of the Coronado *entrada*, although much smaller, starting in 1527, and never heard from again. The encounter with Grand Canyon is on pp. 487-489, which includes a party’s descent into the canyon in order to follow the river to the sea.]

But if one turns to the same citation in the monograph, the following very informative set of five citations are seen in juxtaposition, any or all of which may be useful or lead to further inquiry:

Terborgh, F. C. [pseudonym] [Flaes, Reijnier]

- 1940 7.992 *De condottiere.* Peking: Bij de Paters Lazaristen, 133 pp. [100 copies.] [See “El Gran Cañon”.] [See also remarks with the 1945 translation.] [In Dutch.]
- 1941 7.993 *El Gran Cañon. De Fakkel* (Koninklijke Drukkerij De Unie, Batavia), (March):. [In Dutch.]
- 1945 7.994 *El Gran Cañon.* (Jo Mayo, translator.) *In*: Greshoff, Jan (compiler, ed.), *Harvest of the Lowlands : an anthology in English translation of creative writing in the Dutch language with a historical survey of the literary development.* New York: Querido, Inc., pp. 478-489. [Translated from Terborgh; source text not identified. This is an imaginative retelling of some events of the Coronado *entrada*, although much smaller, starting in 1527, and never heard from again. The encounter with Grand Canyon is on pp. 487-489, which includes a party’s descent into the canyon in order to follow the river to the sea.]
- 1960 7.995 *De condottiere : en andere verhalen gevolgd door Le petit chateau.* ‘s Gravenhage: L. J. C. Boucher, 126 pp. [See “El Gran Cañon”, pp. 88-107. This is an imaginative retelling of some events of the Coronado *entrada*, although much smaller, starting in 1527, and never heard from again. The encounter with Grand Canyon is on pp. 104-107, which includes a descent into the canyon in order to follow the river to the sea.] [In Dutch.]

Terborgh, F. C. [pseudonym] [Flaes, Reijnier], **AND Dalenoord, Jenny**

- 1965 7.996 *El Gran Cañon.* Utrecht: De Roos, 29 pp. (Stichting “De Roos”, 69.) [175 copies.] [Originally published in *De Condottiere* (Terborgh, 1940, ITEM NO. 7.992). New ed., with lithographs by Jenny Dalenoord.] [In Dutch.]

¹³ “You are now in that time of Life which is the properest to store your Mind with such Knowledge as is hereafter to be ornamental and useful to you.” —*Benjamin Franklin to his grandson William Temple Franklin, 13 June 1775.* (*American Philosophical Society.*) Franklin used the two words in juxtaposition in other writings as well (<http://www.franklinpapers.org>).

“treasures and trash” as librarian Louise Hinchliffe more judiciously viewed the coverage in a comprehensive bibliography.¹⁴

WHICH BRINGS US BACK to Elliott Coues. His bibliographical work is all the more remarkable when we realize that he reached this level of achievement at a time when things were done by hand. I am now in my fifth decade of bibliographical work, compiling, editing, and formatting editions both printed and digital. I understand the time it takes to do these things even with the help of computers now; and looking at Coues’ productions I am impressed. Even in 1886 he was intending to compile a “universal bibliography” for ornithology—“from Aristotle” no less!¹⁵—and although he accomplished a master North American ornithological bibliography of tens of thousands of items,¹⁶ and embarked on one for other world locales, he quit, finally, when confronted by the realities of the volume of material and the limitations and distractions of life. Imagine his perspective of things were he to forecast the literary tsunami of the 20th century.

Collating and arranging references is mundane work, certainly, sometimes augmented by interpretive commentary that provides more exercise for the mind. Only one who is intrigued by the printed word, by the rewards of reassembling information, and delving deeply for treasures in existing resources finds it interesting. But none of it is done mechanically; it still does take a person to make evaluations of material to be added, skipped, elaborated, revised, reverified, corrected or otherwise corroborated or emended for the bibliography. A single citation that appears in a bibliography is not always a simple recitation, quickly assembled before moving to the next “find”; each reflects its part in a cycle of acquisition and evaluation. Sometimes batches of citations are discovered at once, conveniently herded together and ready for classification; and other times specific in-depth searches will yield but few items (or one, or none!) in a long trawl.

Coues, in 1897, admitted for himself, and probably for all bibliographers, that “It takes a sort of an inspired idiot to make a good bibliographer . . .”¹⁷ He called bibliography “a necessary nuisance, and a horrible drudgery that no mere drudge [can] perform”. He likened the drive to do it to “the appetite of a gambler or dipsomaniac”. I agree, but I add, for myself and for Coues, that there is a separate, eager force that comes with “infatuation”,

¹⁴ Louise M. Hinchliffe, Foreword in Earle E. Spamer (compiler), *Bibliography of the Grand Canyon and the Lower Colorado River : From 1540*, *Grand Canyon Natural History Association, Monograph 8* (1990), pp. v-vi.

¹⁵ Elliott Coues, [Correspondence], *Forest and Stream*, Vol. 6, no. 3 (February 24, 1886), p. 36.

¹⁶ Elliott Coues, “Birds of the Colorado Valley; a Repository of Scientific and Popular Information Concerning North American Ornithology. Part First, Passeres to Laniidae, Bibliographical Appendix”, *U.S. Geological Survey of the Territories, Miscellaneous Publications, No. 11* (1878), 807 pp. [The appendix to this work is Coues’ first installment in his *American Ornithological Bibliography*.]

¹⁷ Elliott Coues, “Dr. Coues’ Column”, *The Osprey*, Vol. 2, no. 3 (November 1897), pp. 39-40.

which ameliorates drudgery and tedium. Perhaps infatuation is a kindlier form of inspired idiocy.

Years earlier, in 1874, Coues had already discerned the modern purpose for bibliography, one that sees scholarship challenged by utility.¹⁸ He explained, “The labor of such compilation does not appear on the surface, [which I mention only] in the sincere hope that, once accomplished, the weary drudgery of future workers in the same vein may be materially lightened.” In this statement, too, may be read that the reward in bibliography is usefulness to persons and in times not known to the compiler. On the other hand, the statement flies in the face of a remark made a generation earlier by the preeminent cataloger (and in fact a bibliography can be seen as a catalog), Charles A. Cutter, who said that “The cataloguer should not expect to be satisfied with his work”¹⁹, meaning that continued revisions may not lighten the work of others as surely as Coues supposed it could.

Elliott Coues would certainly have embraced the computer as a savior to a bibliographer’s work of collation and editing. In Coues’ day the routine work of compilation led predictably to drawers full and stacks of index cards and papers, to lengthy pages of drudged, uniform citations not meant for fireside reading; which when done up in printed form became rather a nuisance to use. At least in printed form they were readily accessible nuisances. Today, the routine work of identification, evaluation, and compilation still has to be done even for the digital databases. But now, the ways in which value-added products can be derived from the main body of bibliographical data significantly amplify the usefulness of digital forums, although often at the expense of limiting or wholly occluding the ability to perceive and browse the whole.

When my compilation of the *Bibliography of the Grand Canyon and the Lower Colorado River* was first published in 1981²⁰, I never gave a computerized version a thought. In fact, various draft and final lists well into the 1980s all were rolled through typewriters. I was, incidentally, about to embark at that time into a part of my career where I wrote (on typewriters) technical reports about computers. Computers then were mostly batch-oriented mainframes, impractical to load up with millions of bytes of data just to sit and wait; most data were typed first onto punch cards or paper tape and read as needed

¹⁸ Elliott Coues, “Birds of the Northwest: A Hand-book of the Ornithology of the Region Drained by the Missouri River and its Tributaries”, *U.S. Geological Survey of the Territories, Miscellaneous Publications*, no. 3 (1874), 791 pp.

¹⁹ Charles A. Cutter, “The New Catalogue of Harvard College Library”, *North American Review*, Vol. 108, no. 222 (January 1869), pp. 96-129.

²⁰ Earle E. Spamer, *Bibliography of the Grand Canyon and the Lower Colorado River : 1540-1980*, *Grand Canyon Natural History Association Monograph 2* (1981), 119 pp. Superseded by a 2nd ed., 1990 (*Monograph 8*) and supplement, 1993; in turn superseded by an online edition, 2000-date (updated 2000-2015); and superseded by THE GRAND CANON since 2012. [See also the Appendix to Part 1 in Volume 1/Part B.]

into the computer's memory to be processed by programs loaded into it just for the job. Interactive terminals, which were yet new, were pokey contraptions with awful keyboards that had stiff, rickety keys; across murky, usually green-phosphor "CRT" (cathode-ray tube) screens data returned from the "core" of the computer, noticeably character by character, with dot-matrix resolution that one could easily see on the screen. No one had one of these things at home. And what became the internet was embryonic, the limited domain of military consortia and hard-wired academics shuttling bytes and words, not graphics; it was still unknown to the world at large. Besides, computers of the day were meant for "data processing", which effectively meant "number-crunching" or delimited-field arrangements of text. Relatively crude compilations of bibliographical data could be, and were being, compiled through the assembly of boxes of punch cards or reels of digitally formatted tape, but these in the end resulted in more pages of paper documentation, awkwardly printed on aesthetically unpleasing computer printouts. And simply unheard of were digitally composed pages—except those like that of Quadex, a proprietary computerized system, inside the large, floor-sitting boxes of which individual characters on fiche-like cards were strobe-flashed perfectly, in synchronized computer-instructed arrangements, through lenses (determining type size) onto rolls of photographic paper, which, after chemical development and physically cutting and pasting them into page layouts, were used as camera-ready copy for offset printing.²¹

I admit that it is difficult for me to rely on something other than five centuries of book production technology and the distinctly diverse ways in which books have been distributed and used. The ephemeral nature of the internet can be scary to a paper-dependent person, despite unspecific promises of a world of data—notably not "the world's data"—at one's fingertips. An online or otherwise digital bibliography can further allow for a continuously updated format, unencumbered by the methodological "edition" of traditional publication with its physical constraints, expense, and distributional needs of printing, warehousing, and shipping. In that fashion, looking ahead such a bibliography can be reused and improved in ways we probably cannot imagine now. It may well turn out, too, that bibliographies *in general* are only an indulgence of research methods that will no longer apply in the 21st century and after. And bibliographies succumb to human limitations. Coues himself abandoned the work of bibliography, "forcibly divorced", he said, from a mania with which he could no longer keep pace.²² But he gave up because of the volume of material, not because the technology had changed. I, however, have experienced a forced divorce due to technology: the digital database edition of the Grand Canyon–Lower

²¹ Quadex has long since been absorbed and reabsorbed in corporate sales and mergers. I used this phenomenally innovative system, now a clumsy antique, in the early '80s while employed by a commercial publisher of computer technology reports.

²² Elliott Coues, "Dr. Coues' Column", *The Osprey*, Vol. 2, no. 3 (November 1897), pp. 39-40.

Colorado River bibliography, posted online in January 2000, was by 2015 unable to continue its updates, and it was finally removed from the web in October 2021.

I wonder how infrequently are Elliott Coues’ bibliographies referred to today, whether in paper format or through one or another of the massive digitization projects online. His bibliographies are outdated by the passage of time, but I think a more accurate term is “outpaced”, as Coues himself admitted had happened. Regardless, they still are reliable for the time periods they embrace, and they are accessible to those who need them.

Even though every good intention may be held to make a bibliography comprehensive (if that is its intention), pragmatically it is not. The very nature of bibliography lends itself to incompleteness; there is always more to be found, even within the most conscientious of scholarly and avocational fields where it may be vainly believed that “every work” has been found. The fact that multiple editions of a bibliography are published, each of which include many citations that should have been found for earlier editions (and not just newer works acquired since the last edition), testifies that the obscurity of references is due both to the diverse and broadly scattered material that must be found, often serendipitously, and to the growth of and improvements to the bibliographer’s methods and resources. The passage of time naturally adds new works as well as allowing a compiler to rediscover old works previously overlooked. And it allows new technologies (like the internet) to overtake the compiler, which reveals all the more. Those who are the users of bibliographies are, in turn, beneficiaries of this work.

In 1878, Elliott Coues had already confirmed observations that I have made on my own more than a century later. In his ongoing master bibliography of North American ornithology he wrote, “Bibliography is never finished, and always more or less defective, even on ground long gone over”²³ And, speaking of himself, but which the prospective bibliographer can heed, too, he concluded in the third-person, “The writer would [like to] be accurate; yet he feels the weight of Stevens’s satire: ‘If you are troubled with a pride of accuracy, and would have it taken out of you, print a catalogue.’” It is more broadly a recurring predicament of scholarly publishing, even if hardly ever admitted. Malacologist Henry Pilsbry conceded in 1949, “If you want to learn how much you can overlook or forget, just write a book.”²⁴

²³ Elliott Coues, “Birds of the Colorado Valley : a Repository of Scientific and Popular Information Concerning North American Ornithology. Part First, Passeres to Laniidae, Bibliographical Appendix”, *U.S. Geological Survey of the Territories, Miscellaneous Publications*, no. 11 (1878), 807 pp. [The appendix to this work is Coues’ first installment in his *American Ornithological Bibliography*.]

²⁴ Henry A. Pilsbry, “Two Overlooked Synonyms”, *The Nautilus*, Vol. 63, no. 1 (July 1949), p. 36.

THE TRADITIONAL BIBLIOGRAPHY *is* still essential in the digital age. By “traditional” I mean comprehensively monographic—all in one place, not parsed into fields to be grabbed piecemeal and never truly comprehending its entirety. Thus grasped, traditional bibliographies offer perspectives that databases do not because the marvelous electronic guides do not offer a view of the whole to the user. Neither do the electronic guides anticipate all perspectives of a researcher’s task in the ways that the researcher may have in mind. This may change—so we hope from the work and talk of artificial-intelligence developers—but for now a person’s most productive searches are realized in two ways: one from filtered digital responses, the other from the scrutiny of pages with one’s own experience, anticipation and capacity in charge.

Services provided by a database are unambiguously focused; its selections depend upon the way in which the user has queried it. It depends, too, upon how the database’s creators have fashioned its data fields and the methods by which the data are parsed in response to the user’s query. One depends upon the skill of the other to uncover what is useful.

The traditional bibliography, on the other hand, depends foremost upon the skill of its compilers: for its stated subject, is it accurate and useful? In practice, it first reveals at a glance the whole volume of its subject, then it affords its user numerous points of entry that are invisible from a query screen in a digitized database. By identifying sections of the bibliography in which to browse, an indulgent and patient researcher so disposed can uncover qualitatively and subjectively more by paging through it.

With databases we are, regretfully, subservient to the limits of technology. With traditional bibliographies we are obeisant to the physiological and temperamental limitations of the human body and mind; most of all boredom, tedium, and oversight. To be sure, while databases and pages are procedurally at odds, they are for now both indispensable. The dichotomy challenges researchers; administrators, too, who need timely and concise information; and librarians, who provide access and direction to useful resources. Using a digital database gets “a” job done. A slowly used monographic bibliography provides the finer resolution of a subject.

Users who must be time-conscious may view a detailed bibliography as a regretful nuisance, one not useful to the task whether by its sheer volume or by the greater number of “inconsequential” references in it that make it difficult to isolate those that are deemed “important” or “significant”. And yet, another user whose very mission is to uncover myriad minor resources—or perhaps an elusive clue—is likely to retrieve them from a careful browsing. The contextual positions that specific or minor items hold can be discerned only by a subjective analysis by the user. Someday, ever more complex search needs will be matched by the resources and techniques of a vastly more precise (“intelligent”) digital

world. Likewise, researchers’ subjectively unique queries may be far more satisfactorily (even serendipitously) answered. In the meantime, we have our usefully, sometimes fumbly, mixed world of bytes, pixels and paper.

Despite concomitant arguments that admonish either conventional or digital resources, the traditional bibliography, whether it is on paper or presented in digital format like PDF, still provides one of the greatest resources available to new students in a field. While it may be deemed to be an awkward, if not antique, kind of resource, at its best it records much which has been published on the subject it embraces. With it one may see how that body of previous work applies to the fields it covers. As a student advances, the traditional bibliographies they may encounter will be seen with broader familiarity and with greater insights gained from the student’s growing command of the field. Bibliographies also record contributions and false leads; they may even reexpose and reinvigorate perspectives and arguments that have been forgotten in a historical eddy along the main stream of a field’s advancements. In reading the bibliography the student may also discern insufficiencies that draw attention to areas needing more or renewed work.

A bibliography serves all researchers as a documentary and evidentiary tool—this is the principal service that bibliographies have always provided. But further, it may serve as a foundation upon which to build more detailed, modernized, and reliably useful new guides—including new digital databases. No longer perceived as interminable lists of static citations, traditional bibliographies, even those produced years ago, can even serve as platforms on which digitally accessible copies of the cited items may be acquired. This will not just depend upon random, user-structured queries or search strings (such as how users can work with Google Books today, for example), but the bibliography–platform will serve as an authoritative, pre-analyzed, perhaps annotated, list that can deliver copies of the very material cited there, rather than just the citation and the information conveyed by it.

One most essential fact remains even in the digital age: within a traditional bibliography the work of proving sources is already done. It frees its readers to extract from it what is most immediately useful. It allows researchers and information providers to devise and refine value-added products. It affirms for administrators a body of available documentation and prior work. And it may in some cases set benchmarks in the evaluation of specific resources or identify new items of historical significance. Thus a bibliography never will be again a dreary documentation of what-has-been-done, but is the proof for points of historical and administrative interest and a meticulous, mercurial contributor to what can be done next.

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How Many Voices Unheard?
The Choir of Gray Literature in Bibliography
with examples from THE GRAND CANON

by Earle E. Spamer

RESEARCHERS of most every kind eventually meet up with “gray literature”, the murky informational nebula of publications that are produced usually for limited distribution, sometimes not intended for longevity, and which seem to be cited and cataloged every which way. It is called “gray” because these documents lie outside of the usual channels of publication and distribution and confound tidy forms of cataloging and citation. Data about authorship, publisher and place of publication may not be clearly shown, at least not like as seen in conventional books and serials; even the title may be ambiguous or confused with another document, even worded differently on the cover and title-sheet. Further, some may be parts of series, and those series names may be used instead if they include separate volume numbers.

Gray literature stands out in some sections of *THE GRAND CANON*; such is the nature of the subject and the means by which people and agencies communicate their opinions and findings. For this reason this essay is an excursion into the realm of gray literature, partly to relate the hidden importance of this kind of literature and partly to introduce it to those readers who may be unfamiliar with it. Gray literature is a peculiarly interesting form of publication that may not have been encountered by some readers, and for those who are all too familiar with it they may be unaware of the broad professional perspectives of it by an industrious, sometimes bewildered, community of librarians, bibliographers, and researchers.



A peculiarly immense, and ornamental, example of gray literature, the *Draft General Management Plan and Environmental Impact Statement* for Grand Canyon National Park, 1995. It contains a number of watercolor paintings (including the cover, *here*) by an artist who is, regretfully, not credited. Whereas some sources may know who this is, the general readership does not. (By analyzing the hasty signature, the artist is here identified as Philip Thys, whose name is listed on p. 317 as a Visual Information Specialist consultant in the National Park Service's Denver Service Center.) In addition to containing original artwork, this document measures 11 × 17 inches (shy of a yard fully opened); all in all a very unusual example of gray literature. The Final plan, printed at a more conventional 8½ × 11 inches, simply presents collated updates and *refers the reader back* to this Draft document, now made indispensable, for specifics; also an unusual aspect.

Color-Coding Grayness

CATALOGING DOCUMENTS may seem to be only an academic exercise, a mundane part of running a library, but it is the means by which a document can be identified and, whenever it is needed, found. The level of detail in cataloging is a function of a library's resources in staff time, expertise and perceived needs in serving its clients; despite professional cataloging standards, it can, and does, vary.

Sometimes years or decades pass before an item is called for—longer times of a century and more are not unheard of—but *a document's usefulness is not best measured in*

its frequency of use but in its availability. This is in stark contrast to the pressing responsibilities of overcrowded libraries that relegate materials rarely called for to “annexed” storage, often under warehouse conditions in a facility physically apart from the library. This material may be “called for” on request; usually a day or more passes. In some academic libraries, these off-site materials may be requested by students and faculty, but guest researchers may not have permission to request these items. Sometimes this kind of material is simply considered to be “on file”; and the “files” are often not easily browsable by a library’s users.

Worse, some libraries elect to dispose of less-used materials. While such decisions are pragmatic, still one may never presume what will be of interest or use to a researcher in any place or time—and *to fail a researcher’s needs is a library’s greatest failing.* Unfortunately, a lot of gray literature is just the kind of material that wends its way to the annexes, re-sale bins and recycling containers. I prefer a less-used term, “fugitive information”,¹ to describe the content of gray literature because it accentuates both the inherent usefulness of the material and the predicament of the gray literature genre; but researchers and librarians are more familiar with the long-standing “gray” label.

Within a library’s cataloging schemes it may be a matter of *how* “gray” a document is that determines its projected usefulness to the library’s clientele; whether it is accessible immediately, “on request”, or not kept. In *THE GRAND CANON* here, the number of such fugitive citations are particularly apparent in the sections devoted to the environment and geology, so it is the researchers in these areas who will be most attracted to and impacted by the inavailability of gray literature. Whether or not all of these cited documents can be located today is a matter that is, regretfully, the burden of the researcher and the hapless librarian who assists.

Once, the medium was limited by economy, too. Many works were produced by mimeograph; even, as around the turn to the 20th century, by such arcane methods as the Edison Electric Pen process. Today, in addition to its conventional text-on-paper-sheets format, gray literature may appear as slick, professionally produced documents, as often as not in full color—and now in digital formats as well. But the “gray” remains: the creator’s intentions for audience and distribution, and the ways in which the document is physically

¹ This term is from a web-posted document by Joanne V. Lerud and Lisa G. Dunn, “Fugitive Information on the World Wide Web: A Cost-Effective Method of Access for a Diverse Clientele”, original URL <http://educate1.lib.chalmers.se/IATUL/proceedcontents/fullpaper/lerud.html>, relocated at http://www.iatul.org/doclibrary/public/Conf_Proceedings/1997/Dunn.doc (accessed 26 November 2011; reaccessed 9 January 2017). This web page was subsequently removed (attempted access 26 October 2017), offering a good example of the inconvenience to future researchers when web-posted materials have been moved or are no longer accessible. A startling, more pragmatic case of inconvenience is such as that of opinions of the Supreme Court of the United States, which formulate legal precedent and orders, that cite web-based materials that may no longer be accessible (Adam Liptak, “In Supreme Court Opinions, Web Links to Nowhere”, *New York Times* (September 24, 2013), p. A13).

composed, continue to shroud the very tidy and conventional things that librarians and researchers look for when they catalog and cite these documents.

A document's size or format never determines whether it is "gray" or not; it may be one or few pages, or multiple volumes; and it may be a blurry mimeographed document or a colorful, professionally printed compendium of information. What makes it "gray" is how such literature is produced, acquired, retained, and retrieved. Some libraries receive these items as a function of maintaining their institution's internally-produced records, or by happenstance or donation, occasionally by purposeful acquisition, paid for or at no cost. Then, different librarians may follow different rules for cataloging the same document, depending upon whether the library follows established practices or its own special schemes. If the library is cataloging a document as "one of its own", produced by the staff or department of an organization or agency that it supports, it may follow different procedures than if the library were cataloging a document received from outside. Some may catalog them for inclusion on the readers' shelves; others may banish them, perhaps not even cataloged, to "reference files" whose only guides are alphabetization or enumeration.

When "gray" documents are cited by researchers or as part of administrative productions, the writers or their editors will follow standardized professional guides or house rules of style for citations; sometimes they will be creative. Citation styles vary greatly between professional journals and publishing houses; some follow one or another of separately published writing guides (for example, the *Chicago Manual of Style*, which is followed by many publishers and academics, or agency-specific guides like *Suggestions to Authors of the Reports of the United States Geological Survey*). "Forcing" a gray-literature citation to conform to one style may muddle the information contained on the title page or from other evidence within the document, a disservice to those who follow up on it. Title-pages may display a confusing arrangement of typography, title, subtitle, series name, and other information—not necessarily well arranged—while other times the same breakdown may be displayed on various pages, even the last leaf. Researchers who find citations written in one format may look for, or request through a librarian, one of these documents only to learn it cannot be located, not because the document may not exist in the repository but because the document may have been cataloged differently from the source the researcher has in hand—thus, "not found". One must wonder how much potentially useful gray literature does not find its way into a researcher's work only because a copy of a promising source could not be found.

To cut to the chase: I have followed a simple rule in *THE GRAND CANON*—I cite the title, author, and responsible parties for documents of gray literature, as precisely as possible from the original, gleaned from a careful examination of more than just the cover sheet (the cover- and title-sheets may differ, or authors' names can appear elsewhere in the

document), and following as closely as possible the citation style used in THE GRAND CANON. Special investigatory program or contract numbers are included as notations when they are indicated in the original document. It is then up to the interested researcher to use this *verbatim* information in tandem with the cataloging schemes of libraries or other repositories, perhaps with the assistance of librarians, to establish how *those* repositories may have cataloged and stored the same item.

Pulling the Curtain Aside

GRAY LITERATURE is usually restricted to academic and political venues. In THE GRAND CANON, as we shall see, most of the gray literature appears in the environmental and geological subject areas. There is a very large proponent, too, issued from legislative branches of government, but which (as explained elsewhere in THE GRAND CANON) is probably severely undercited due to the sheer volume of material as yet unlocated; so this specific grouping will be overlooked as examples in this essay although the principles discussed here apply to it.

Furthermore, today's increasing number of general publications that are produced "on demand" follow in the same vein as gray literature. In brief, many of the on-demand publications do not display imprints as such; and as for place of publication certain central printing establishments, such as one in Lexington, Kentucky, produce works for many on-demand publishers wherever those publishers may be located; and there are other locations, too, none of which truly constitute an "imprint". The printer's date in a document—for the identical document—will vary from "demand" to "demand", too. This is becoming a perplexing problem bibliographically. THE GRAND CANON has accommodated some of these on-demand publications when they have been encountered, and the dates are those of the dates of printing, which thus far seem to represent (at least among the citations in THE GRAND CANON) the earliest known occurrences because they have not previously been available as such. As time goes by, however, it will probably be prudent to cite only these earliest known dates regardless of the variations that may appear in the product (different cover illustrations, different pagination, and so forth); but making retrospective surveys may thus be impossible if the earliest dates are unknown. This is a problem that I have not addressed since keeping apace with new appearances of on-demand titles has not been too difficult thus far. We may yet have to discern in this special kind of gray literature a new kind of citation style, but this is a matter for the future.

The "murkiness" of the gray-literature nebula is the view from the perspective of the users of these documents—librarians and researchers. Surviving copies may be scarce to begin with, and they may be cataloged in different ways among libraries that do hold them. The problems of gray literature are neither shunned or glossed over by professionals;

international conferences on the problems and issues of gray literature are held from time to time. And as a bibliographer I, too, have had to come to terms with the presence of these kinds of works, benefiting from the experiences of other researchers and librarians with whom I have worked when it comes to citing (and looking for) these productions.

In the late 1990s I wrote an essay (this one, in part) to include with what became the Internet Edition of *A Bibliography of the Grand Canyon and Lower Colorado River* (but since October 2021 no longer available online); but this and other introductory materials that I had hoped to use were not added to the online presence. A decade and a half later, I found that the essay not only still stood well by itself, but it now offered a contrasting perspective of the topics that it addresses.

This views both an embryonic digital world of the 1990s and the present world that functions in a vastly more web-based fashion than it did even then. Many of the example citations were those that were known to me in the '90s; the fact that they are still relevant to the discussion makes it less necessary to force an updating of the essay to embrace “timely” citations from recent work. In reusing some of the text here I further recognize instructive lessons to be learned in the retention of the older citations and the attempts to relocate them a decade and more later.² And since the purpose of a bibliography is to record in context everything that has been done, this essay in support of the bibliography is partly historical, reflecting perspectives from a time when digitization and online resources were coming to the fore; partly a retrospective analysis of these views.

So, the greatest frustration addressed in this essay is the demise of accessible links to web-based resources. This comes as no surprise to a researcher, but these examples expose the uselessness of web citations in historiographical work. If one of the foundations of scholarly research is the citation of references, which one then may find for themselves to reassess or to continue on a new road of investigation, how then does one travel these avenues if the work is no longer available? In the examples I cite herein, using a web address (URL—Uniform Resource Locator) from the 1990s originally, I follow through with searches for the same material to illustrate the points that are raised here. In most cases, as one shall see, the information has been relocated; but it should not be the researcher’s job

² **In the footnoted references that follow in this essay I retain the original URLs that were cited in the first draft of the essay, written in the late 1990s.** Where URLs were shown in 2011 to be no longer valid, I searched for the same web-posted document or website via an online search; and where updated URLs were located I so indicate them. Of course, there is no assurance that these *in turn* will remain valid. Websites or documents that could not be relocated are so indicated. [URLs were not generally further updated for the revision of this essay in the 4th Edition of THE GRAND CANON, nor now in the 5th Edition—purposely, to further demonstrate the futility of relying fully on them in the future, at least for that material which has not been made otherwise “permanent” or recaptured in some other format. It is a ridiculous situation: future researchers may be able to re-quote the source of lost documents, but others will not be able to corroborate the information, substantiate its use, or examine the greater whole of the document. —E.E.S., December 2021/November 2024.]

to hunt for the material yet again in spite of the useless URL. At best, web citations duplicate effort in the long run.

What, too, does this mean to those who created the work in the first place? And, will *any* copies, in whole or in part, survive somewhere? These are aspects that relate to what I have called “light gray literature”.³ Specifically, light gray literature comprises materials retrieved from online resources either in digital format or printed to paper, whether they represent the online resource in whole or in part. The medium is inconsequential; rather, the genre embodies a combination of the intentions of the document’s creators in posting the materials online, and the intentions of those who saved copies of that material in whole or in part. At the time of their acquisition (for whatever reason) these materials may be a researcher’s “Fair Use” reference copies, which clearly are available elsewhere. But in the future, this same material in one collection may then represent the sole surviving relics, in whole or in part, of digital material that is no longer extant. The challenge to an archivist or librarian of that day will be to ascertain whether it is material that is still accessible elsewhere, presumably in a copyright-protected venue, or whether it is then a unique or exceedingly scarce resource worthy of retention with restrictions if copyright provisions are still in force. Eventually, all such material will fall into the public domain, which is reason enough to safeguard it should it be the only record of a work by an individual, institution, or agency. This is, after all, a loss through technological decay or mishap, probably unintended or unanticipated by the work’s creator.

I consider the genre of gray literature overall just as informationally useful as is traditionally published literature; much of it is plain facts and data that publishers would not find cost-effective in production and distribution through conventional channels. (Light gray literature does not come under the purview of THE GRAND CANON, although it will run as a current through research efforts conducted in the future; it will always be present.) There are as well problems in gray literature about the integrity and reliability of data, or biases, contained in the documents, often having not weathered the academic process of critical peer review; and for these reasons they are not always considered to be *bona fide* source materials for research. But this, too, is beyond the scope of the bibliography, whose purpose it is simply to document previous work and to provide the information by which it may be sought.

³ The term was first used in passing in Earle E. Spamer and Arthur E. Bogan, “Your Code or One Code?”, *Systematic Biology*, Vol. 46 (1997), no. 4, pp. 748-750. I elaborated on its principles in Earle E. Spamer, “What a Woven Web: Archives, Websites, and the Coming Legacy of ‘Light Gray Literature’”, *Provenance*, Vol. 20 (2002) [2004], pp. 59-71.

The Gray Cat at Night

THERE IS NO simple answer to the question, “What is gray literature?” There are probably dozens of definitions.⁴ Most formal among them is a definition adopted in 1997 by the Third International Conference on Grey Literature, “The Luxembourg Convention on GL”, which defines gray literature as “That which is produced on all levels of government, academics, business and industry in print and electronic formats, but which is not controlled by commercial publishers.”⁵ Unfortunately, this is a sanitized vision of the genre; it does not meet the complexities that produce so many problems in cataloguing (and citing) many different kinds of gray literature.

Like the proverbial gray cat at night, gray literature is hard to identify; it is difficult to find, and, when sighted, it is often described poorly. Topically these documents can appear in any venue; even “popular articles” such as those which are commercially published for the lay reader have been labeled as gray literature.⁶ Some definitions of gray literature exclude “nonstandard media” such as electronic documents⁷ even though in the decade since first citing this source electronic documents now fall under every acceptable aspect of publication and production, from formal to gray (and light gray).

Gray literature is simply problematical. It contains mostly useful information, but it is not distributed in channels usually used by libraries and individuals. It is difficult to obtain, hard to properly catalogue, often peculiarly cited because it is neither book nor serial, and, completing the cycle, hard to find using another person’s citation. While dutifully credited in an author’s list of references, gray literature frequently differs from conventional literature because it is thrown out to the reader without any help for finding it; the reader is left to his or her own wits to be as fortunate as was the author in getting hold of it. Sometimes, authors cite gray literature on the authority of other authors who have cited it. Of course, this scenario creates its own problems when the citation formats—and the information in them—are modified to accommodate the re-citation’s editorial style.

Despite problems, gray literature is hardly ignored as a subject of study. Numerous articles about it have been published, there are organizations which pursue its studies, problems and attempts to organize it, and there have been international symposia on the

⁴ D. J. Farace, with J. Frantzen and N. Stoffels, *Annotated Bibliography on the Topic of Grey Literature: A Public Enterprise in Editing and Review*. 3rd ed. (TransAtlantic, Amsterdam, 1998), 116 pp.

⁵ GreyNet, Grey Literature Network Service, <http://www.konbib.nl/infolev/greynet/home.html>. [Revised URL: <http://www.greynet.org> (accessed 26 November 2011).]

⁶ U.S. Geological Survey, Raptor Information System, <http://www.ris.idbsu.edu/aboutris.html>. [Revised URL: <http://ris.wr.usgs.gov/> (accessed 26 November 2011).]

⁷ U.S. National Aeronautics and Space Administration, “Support for Processing of Scientific and Technical Information (STI), Records of Inclusion in the NASA STI Database”, <http://www.conwal.com/nasa.html> (URL not valid in November 2011; comparable web page not located).

description and management of gray literature.⁸ Some libraries, such as the National Oceanic and Atmospheric Administration (NOAA) Central Library, have a specific “Gray Literature Collection”; in NOAA’s case their holdings are restricted to this agency’s own gray literature publications, which include “technical memoranda, reports, circulars, and in-house publications”.⁹ Others favor gray literature, such as the Demography Library in the Brown University Library, which “specializes in ‘gray literature, materials which are not readily or easily commercially available’”; in their case, examples are “Chinese census reports and Guatemalan population records”,¹⁰ but the principle is the same regardless of

⁸ Some examples are [to make the point, I have not established the validity of the URLs beyond those stated and dated]:

“Review of the Gray Literature From State Reports” in *Environmental Epidemiology, Volume 2: Use of the Gray Literature and Other Data in Environmental Epidemiology*, by the Committee on Environmental Epidemiology, National Research Council (National Academy Press, Washington, D.C., 1997).

EAGLE (European Association for Grey Literature Exploitation) and SIGLE (System for Information on Grey Literature in Europe), <http://www.konbib.nl/sigle/home.htm>. [Revised information: EAGLE ceased in 2005 (see http://en.wikipedia.org/wiki/European_Association_for_Grey_Literature_Exploitation, accessed 26 November 2011). Revised URL for SIGLE: <http://www.opengrey.eu/> (accessed 26 November 2011).]

PRAISE Gray Literature Project, <http://library.kcc.hawaii.edu/praise/grayweb2.html>. [Revised URL: <http://praise.manoa.hawaii.edu/index.php> (accessed 26 November 2011).]

The program for the Third International Conference on Grey Literature, <http://www.konbib.nl/greynet/2.4.htm>. [Revised URL: <http://www.opengrey.eu/search/request?q=partner%3Aagrey.net+year%3A1998> (accessed 26 November 2011).]

“GIS Literature Database Project, a Collaborative Endeavor in Publishing ‘Gray Literature’ for GIS Conference Proceedings”, <http://www.odyssey.maine.edu/gisweb/gisabout.html> [URL no longer valid, title not relocated through web search, November 2011.] [Geographic Information System.]

A series of web pages that I had been able to identify only as “Soule and Ryan on Gray Literature”, which addressed topics on seven separate web pages, http://www.dtic.dla.mil/summit/tb07_1.html through [tb07_7.html](http://www.dtic.dla.mil/summit/tb07_7.html). [URLs no longer valid. The only web search that retrieved “Soule and Ryan on Gray Literature” in November 2011 was the brief web page http://www.rmarshall.net/Desktop/Second%20level%20index/Intelligence%20Sources/Grey_literature.htm.]

“Information Storage/Maintenance and Archives, Other Major Institutions”, <http://www.library.american.edu/staff/bazzell/handout.htm>. [URL no longer valid. A web search on the title in November 2011 retrieved one web page, wherein the “handout” is included in a document from the North American Coordinating Council on Japanese Library Resources: <http://www.scribd.com/doc/22720297/Accessing-Government-Documents> (accessed 26 November 2011).]

A web search “hit” on a posted email from the Rare Books and Special Collections Forum, exlibris@rutvm1.bitnet, which said only: “The Public Historian 15: 2 (Spring 93) 63ff. has an article defining gray literature and 80 pages of reviews of instances of it.”

⁹ <http://www.lib.noaa.gov/docs/unique.html> [An attempt to reaccess this URL in November 2011 retrieved the following notice from the NOAA website: “The requested resource /docs/unique.html is no longer available on this server and there is no forwarding address. Please remove all references to this resource.” The library’s “Mission and History” webpage at this time did, however, notice briefly, “Gray Literature Collection: The NOAA Central Library has the most extensive collection of the agency’s gray literature publications. These publications include technical memoranda, reports, circulars, and in-house publications.” (<http://www.lib.noaa.gov/about/mission.html>, accessed 26 November 2011)]

There are many more examples from over a long period of time, and for just one view at random from the traditional, pre-digital literature see D. N. Wood, “The Collection, Bibliographic Control and Accessibility of Grey Literature”, *IFLA Journal*, Vol. 10 (1984), no. 3, pp. 278-282.

¹⁰ Patrick Moos, “In a Little-Known Library Lies a Nationally-Recognized Collection. Brown’s Demography Library Holds One of the Nation’s Preeminent Centers of Population Research”, *The Brown Daily Herald*

the subject. The Science, Technology and Business Division of the Library of Congress has a special section, Technical Reports and Standards Special Collections; they note in introductory comments that among its technical reports on file is “an extensive collection of foreign technical reports and other ‘gray’ literature”¹¹, which seems to categorize as gray only the foreign materials in what otherwise is an area that already is widely regarded as being gray. The Owens Library at Northwest Missouri State University states that “Gray literature includes pamphlets from professional associations, information provided by nonprofit organizations, and technical papers created by scholars and shared among colleagues.”¹²

Regardless of what is gray literature, being neither book nor serial and often lacking an imprint in the conventional categories of cataloguing, it also usually fails to fit the usual citation schemes. For gray literature, I have adopted a scheme of citation which captures all pertinent information that could be used to catalogue it, using as much of it as possible to create a citation in the format used by this bibliography, sometimes complexly or by appending spurious, perhaps useful, data as notes. In turn, the user searching for the item may have to work with librarians to establish just how a particular document may have been catalogued in their—or other—libraries.

Gray literature varies tremendously also in its outward appearance, and this seems to have a kind of subliminal influence on whether it is perceived as “legitimate” or “scholarly”. Some of it may be bound for durability and aesthetics; some may be held together by spiral wire, plastic combs, or heat-fused plastic strips; some of it may be drilled for use in loose-leaf binders; and some of it may be saddle-stitched, side-stapled (with or without taping around its “spine”, with or without separate cover leaves), or just simply stapled in one corner. Some kinds of gray literature may be indistinguishable from memoranda; other kinds may be mistaken for books. (Readers may correctly make the point, too, that some of these descriptions can also be applied to some publications from commercial, scholastic, and private publishers, thus diffusing the physical distinction

(<http://www.theherald.org/issues/111898/library.f.html> [the “theherald.org” domain is no longer valid; the newspaper’s newer web address no longer posts its back issues online (<http://www.browndailyherald.com/>)]). The item referred to here, posted to a former version of *The Brown Daily Herald* website, noted that the story originally appeared in the issue of Wednesday, November 18, 1998. As is virtually always the case with Internet-posted documents reformatted from documents originally published in the print medium, a bibliographically proper citation cannot be made from it because it lacks page numbering of the original article; the resulting imprecision of locating quotations is at best unsettling. A related distasteful situation is the result of incomplete credits, where an author posts on a website what obviously is a previously published article but fails to fully credit its source.

¹¹ Library of Congress, <http://lcweb.loc.gov/rr/scitech/trsover.html>. [Revised URL: <http://www.loc.gov/rr/scitech/sciover2.html> (accessed 26 November 2011), which is revised but notes holdings of gray literature.]

¹² Northwestern Missouri State University, <http://www.nwmissouri.edu/nwcourses/library/search/evaluate.htm>. [Revised URL: <http://www.nwmissouri.edu/library/courses/research/EVALUATE.HTM> (accessed 26 November 2011).]

between conventional and gray literature.) There is no common denominator as to just what is a gray document other than the confusion it provides to all of the people who either store it or must find it again.

The advent of what once was called “table-top” publishing that arrived with the personal computer and printer, and the photocopier, expanded the volume of gray literature. Where before if it was not traditionally printed, it was reproduced by mimeograph or ditto machine, neither method efficient for large numbers of copies; now it can be economically and reliably run off by the thousands even without the outside help of commercial printers and business-copying franchises—although now pay attention to the burgeoning “on-demand” printing industry and the flock of authors who come into its fold, further graying the field of what is a “publication”.

Gray Literature in THE GRAND CANON

IN THIS BIBLIOGRAPHY, gray literature largely includes scientific field guides produced for conventions and symposia, the results of ongoing or “final reports” of environmental or legislatively directed investigations, and all kinds of government documents that are not parts of regularly published series. Despite the label of “gray literature” I treat all of these as publications. I cannot any more look at gray literature as second-rate than I can privately published, self-distributed books, of which many are cited in *THE GRAND CANON*. The only screening process that I have applied is that the document must have been made available in multiple, identical copies, and made available to those who wish to have access to it (that is, officially “secret” or similarly classified productions of government agencies would be excluded; then again, they would not likely be known to me anyway). Manuscripts and memoranda do not meet this criterion. Publications posted only to internet sources and otherwise not arranged as discrete publications, are specifically excluded, too, because of the problems of assuring that they will always be available.

Even in the earliest stages of this bibliography, in the late 1970s, the gray literature citation was a pressing concern. Identifying just what it is was something I had to learn by doing, and only much later did I discover that in the past couple of decades it has become a widely recognized and studied concern of librarians, information specialists, and researchers. Where it was showing up in the literature seemed to have no direct bearing on its content or on its reliability; it was being cited for the most part “on the fly”; often, those who cited it seemed to have special sources for their material because it just was not showing up in the places I was turning to find it. Debachere called gray literature “a fuzzy set that is irregular and variable.”¹³ She continued, “On the one hand, it spills over in areas that remain uncontrollable for a long time, such as meeting reports, associative publications, or

¹³ M. C. Debachere, “Problems in Obtaining Grey Literature”, *IFLA Journal*, Vol. 21 (1995), no. 2, p. 94.

even private publications, which are clearly in the confidential or private domain. On the other hand, it enters into published literature, the existence of which is hence known by libraries, such as the proceedings of meetings.”

This is not always as clear as it seems. There are the International Geological Congresses, major conventions which have met somewhere in the world about every four years since the 1880s. In one respect the congresses’ *Compte-Rendu* (when the standard meeting language was French) or the *Abstracts* or *Proceedings* (when the standard meeting language became English) are serials; they are usually easily found in a library’s catalogue, even if there is a cross-reference between the French and English titles, “Congrès Géologique International” and “International Geological Congress”. Another example, a little less easy to find, is the *Transactions and Proceedings Series* of the U.S. National Park Service, irregular in date, which in turn encompasses many separately published volumes that can as well be catalogued by their individual titles; for example, the *Proceedings of the Third Biennial Conference of Research on the Colorado Plateau*, which in turn can be located also by its informative but less used document number, “NPS/NRNAU/NRTP-97/12”.

Other meeting volumes are more problematical, such as *Proceedings of the Fossils of Arizona Symposium*, which not only is not periodic but its proceedings volume received very limited distribution. (Indeed, because distribution was primarily to those in attendance means that few if any such documents wind up catalogued in a library, because many libraries balk at the prospect of taking in “donations” of such documents buried in the accumulata of researchers who either are cleaning their offices or from the effects of those who have died.) Or then there is the instance of *Colloque sur la Stratigraphie du Carbonifère* held at the Université de Liège and published as volume 55 in its irregular series, “Les Congres et Colloques de l’Université de Liege”. In each case, there are different key words that can be selected as the primary name for cataloguing.

The reader should try to locate in this bibliography these citations using the information given above. Imagine, then, the problems inherent in looking for these documents in a library catalogue whose cataloguing scheme, digital or not, may not well accommodate these kinds of documents. Imagine, too, finding these titles by handsearching in a library’s older card file. And what of those libraries who may have these materials, cataloged or not, but which do not contribute to the globally available library catalogs online? These problems and a special example of “minimum cataloging” is outlined by Bichteler, who asks, “If the major research libraries don’t contribute cataloging records for gray literature to the networks, who will?”¹⁴ Without quick and easy access to large segments of gray literature, users are left to the traditional grunt work of handsearching¹⁵—I call it

¹⁴ Julie Bichteler, “Geologists and Gray Literature: Access, Use, and Problems”, *Science and Technology Libraries*, Vol. 11 (1991), no. 3, pp. 39-50.

¹⁵ The term “handsearching” was brought to my attention in “How Can I Participate?” in the Cochrane

“browsing”—which for a long time yet may still be the most effective way. In fact, bibliographies such as the present one will compound the problem further, by providing references to gray documents, but cannot provide the means by which to let the user find them in libraries. The overall problem is not as extreme as it was even a decade ago thanks to the widespread advances of web resources, but the nuances of cataloging and retrieval remain.

In almost every case I met in this bibliography, gray literature was “non-conventional”, to use one phrase of description given to this kind of literature. But it is clear, in the context of this bibliography, that there are two main categories of gray literature beyond that of purely administrative documents: geological and environmental. The part of the bibliography on Administration is also filled with gray literature, but it should not come as a surprise that there should be so much of it in this category. There is a similarly obscure subset of archaeological literature, too, which fits the criteria of grayness,¹⁶ but much archaeological literature in turn is so-called “black literature”—classified—given its locality-sensitive content. (For discussion of the shades of informational categories, see in Stefik.¹⁷) Such exclusionary literature cannot be cited here; it is superfluous to the research community because of restrictions on its availability.

Geological Gray Literature

GRAY LITERATURE has long been a specifically peculiar problem among geologists because they are a much more socially- and geographically-integrated group. Lest one jump on this remark as being elitist, I will simply point out that, by far more than do other scientists, geologists routinely gather not only to meet and discuss, but also to conduct field excursions to places of special interest and problems. The field trip has been *de rigueur* in geology since the birth of modern geology in the 1700s (although in earlier times, even in ancient times, the field trip was often a solo endeavor by curious academics). Field trip guidebooks abound; included in them often are road logs with which other researchers can retrace the routes on their own. The accompanying explanatory texts and conjectural discussions will not likely be found anywhere else. Separate maps are sometimes a part of these documents, which are an entirely different problem to librarians and to those who

Collaboration, http://www.compmed.ummc.ab.umd.edu/compmed/cochrane_collaboration/cmpt.htm.
[Revised URL: <http://www.cochrane.org/handbook/6221-handsearching> (accessed 26 November 2011).]

¹⁶ For example, some reports can be located in the Reports Module of the National Archeological Database, <http://cast.uark.edu/other/nps/nadb/> wherein gray literature is defined as documents that are “unpublished, uncataloged, and have limited circulation”. [URL remains valid; accessed 26 November 2011; access on 10 December 2021 redirects to a generic link for University of Arkansas “archived” resources.]

¹⁷ Mark Stefik, *Internet Dreams : Archetypes, Myths, and Metaphors* (MIT Press, Cambridge, Massachusetts, 1996), 412 pp.

wish to obtain photocopies or electronically derived copies¹⁸; the problems are more magnified when these large, folded maps are printed in color, which is less an aesthetic concern than it is a very specifically important way of conveying a great deal of geological information. All of these factors contribute to field trip guidebooks being “orphans”, which “may not be shelved or catalogued”¹⁹.

Ironically, these kinds of documents are sometimes superior to those which are more traditionally published either under the imprint of a recognized journal or national or international organization. Bichteler indicated specifically that “guidebooks are the best and most recent source of information of the geology of a very specific area, thus they are in high demand.”²⁰ But with limited distribution, such as noted above, they fail to wind up in the repositories that can best serve those who need to find them. Bichteler also quoted Rosalind Walcott who depicted these “sneaky, fly-by-night, changecloth publications [as] hard to identify, hard to acquire, hard to catalog and retrieve, and hard to preserve.”²¹ What neither of these authors noted is that, even when the contents of these kinds of publications are peer reviewed prior to publication, they also sometimes contain information which is purely conjectural, as a means of promoting discussion and as a defense of particular views of geology as researched in the field; more specifically, in the real-time environment of field trips, with the field guides serving as a syllabus. Some such articles, for example, appeared in the field trip guidebook for Colorado River trips through Grand Canyon sponsored by the 28th International Geological Congress.²² (Incidentally, the last-mentioned publication was distributed in comb-bound volumes to members of the field trips, but was otherwise sold as perfect-bound books at the congress in Washington, D.C., and through the mail by the publisher, the American Geophysical Union. The perfect-bound version, although identical to the comb-bound one, has the outward appearance and feel of a book that is more likely to be more properly maintained—and cataloged.)

¹⁸ Even today’s mammoth and ever-growing Google Books effort, which is making available on the web millions of digitally scanned books, periodicals, and other catalogued documents, is not without its own problems of accessibility. Due to copyright concerns, some of these documents are not yet viewable online. Of those that are available, oversized pages (fold-outs and the like) are bypassed as part of the scanning process, a procedure that does not make the whole document available, forcing those who do need to see that passed-over material to find a physical copy anyway.

¹⁹ Robert G. Corbett, “Field Trip Guidebooks Need Not Be Gray Literature” [ABSTRACT], *Geological Society of America, Abstracts with Programs*, Vol. 20 (1988), no. 7, p. A242.

²⁰ Julie Bichteler, “Geologists and Gray Literature: Access, Use, and Problems”, *Science and Technology Libraries*, Vol. 11 (1991), no. 3, p. 41.

²¹ Rosalind Walcott, “Guidebook Problems From the Librarian’s Point of View”, in Mary B. Ansari, ed., *Proceedings of the Geoscience Information Society, 1989, November 6-9, St. Louis, Missouri* (Geoscience Information Society, 1990), pp. 185-192.

²² Donald P. Elston, George H. Billingsley, and Richard A. Young (eds.), *Geology of Grand Canyon, Northern Arizona (with Colorado River Guides). 28th International Geological Congress, Field Trip Guidebook T115/315* (Donald P. Elston, coordinator) (American Geophysical Union, Washington, D.C., 1989), 239 pp.

In related matter on gray literature from this same geological congress, another volume (perfect-bound), limited to 300 copies, was independently prepared for these field trips by Spamer.²³ It was distributed to the members of the field trip and afterwards sold by its producer, the Department of Malacology, Academy of Natural Sciences of Philadelphia, as part of its irregular “Miscellaneous Publications” series, *Tryonia*. But owing to problems of citing gray literature, it has since been variously cited as “*Tryonia*”, as “Miscellaneous Publications” (of the department), and as the adjunctive, invented series title (it was an administrative justification for its production), “Contribution of the Invertebrate Paleontology Section, no. 1” (of which, incidentally, there has only been one). In cataloging this item, it would seem that the variations of typography, by which important and less-important information is displayed, is ignored in favor of “what seems to be” pertinent information from the cover or title-sheet.

Geology does seem to stand out from other sciences in that there are more detailed discussions of work in progress, and more open sharing of information, than there are in other scientific fields. In 1964 there was a symposium in Flagstaff, Arizona, on the geological history of the Colorado River. Its proceedings volume offered brief analyses and commentaries stemming from the convocation, focusing on the history of the Colorado River in Arizona.²⁴ Despite its having been published as part of the Museum of Northern Arizona’s *Bulletin* series, its relative scarcity made it seem in coming years as if it were part of the gray literature genre. In 2000 a second, formal symposium on the same subject was held at Grand Canyon; its proceedings volume was published by Grand Canyon Association as part of its *Monograph* series, not without its own hiccups in citation.²⁵ Then in 2010 an informal follow-up workshop was held in Flagstaff.²⁶ Its abstracts, posted to a secure website, comprise both true gray literature and a prime candidate for light gray literature.²⁷ The abstracts were in turn, some with revisions, produced for the Open-File series

²³ Earle E. Spamer, “The Development of Geological Studies in the Grand Canyon; Prepared for the 28th International Geological Congress Colorado River Field Trips Through the Grand Canyon, Lees Ferry to Temple Bar, Lake Mead, Arizona, June-July 1989”, *Tryonia* (Academy of Natural Sciences of Philadelphia, Department of Malacology, Miscellaneous Publications), no. 17 (1989) (Contribution of the Invertebrate Paleontology Section, no. 1), 87 pp.

²⁴ Edwin D. McKee, Richard F. Wilson, William J. Breed, and Carol S. Breed (eds.), “Evolution of the Colorado River in Arizona; an Hypothesis Developed at the Symposium on Cenozoic Geology of the Colorado Plateau in Arizona, August 1964”, *Museum of Northern Arizona, Bulletin 44* (1967), 67 pp.

²⁵ Richard A. Young and Earle E. Spamer (eds.), *Colorado River: Origin and Evolution : Proceedings of a Symposium Held at Grand Canyon National Park in June, 2000* (Grand Canyon, Arizona: Grand Canyon Association, 2001), 280 pp. (Grand Canyon Association, Monograph 12.) [The volume carries the copyright date 2001, and the Library of Congress cataloging date 2003, but was not released until July 2004. It has traditionally been cited with the 2001 date, which more closely reflects the date of the 2000 symposium, even though strict bibliographical applications focus on the actual publication date.]

²⁶ “CR_Evolution_2: Origin and Evolution of the Colorado River System II Workshop: May 24-26, 2010, Flagstaff, Arizona.”

²⁷ <https://sites.google.com/site/crevolution2/home/abstracts> (last accessed 10 December 2021; URL not valid 15 November 2024).

of the U.S. Geological Survey; but the document is available only on the web—again, both gray and light gray literature.²⁸

The kinds of geological gray literature that show up in great numbers in *THE GRAND CANON* as might be expected are those from the U.S. Geological Survey; specifically, its informal series, *Open-File Reports*. (State geological surveys also produce such on-file reports.) These are precisely what the name says: they are not part of traditional publication series such as the USGS's *Bulletin* and *Professional Paper* series—or even the formally published map series, *Miscellaneous Investigations*. The *Open-File Reports* are reports of field investigations, whether texts, maps, or both, that are reproduced either in small quantities or on an as-needed basis (although today most of the *Open-File Reports* are accessible online). Such limited distribution is driven by economic concerns, and indeed, as one moves from a more financially flush period before the 1970s to the present, the number of such documents increases tremendously. Fortunately, the USGS distribution network is easy to access now²⁹, and these documents are no more harder to obtain than are the principal series, the exception being that the oldest such materials are not included and must be sought out the old-fashioned way, by hunting, with help, and occasionally with luck.

Many of the USGS *Open-File Reports* cited in *THE GRAND CANON* are maps. Again, geology is a very geographically- and visually-oriented field of science, and the geologic map is a unique way to convey a great deal of information. With some maps, geologists can also derive a three-dimensional image of geological structure in a region. This is admittedly a means of communication specific to geologists, but one so important that it demands its own section in *THE GRAND CANON*. Map data are now being made available in electronic formats, with which maps can be produced by the user, if the user has the appropriate equipment.³⁰ There will for a long time yet still be a need for the large, paper map, and the only economic way of making it available will be to “open-file it”; and today that means in

²⁸ L. Sue Beard, Karl E. Karlstrom, Richard A. Young, and George H. Billingsley (eds.), “CRvolution 2—Origin and Evolution of the Colorado River System, Workshop Abstracts; May 24-26, 2010, U.S. Geological Survey, Flagstaff, Arizona”, *U.S. Geological Survey, Open-File Report 2011-1210* (2011), 300 pp. Available only through the USGS Publications Warehouse website, at <http://pubs.usgs.gov/of/2011/1210/of2011-1210.pdf> (last accessed 15 November 2024).

²⁹ Accessible through the USGS Publications Warehouse at <http://pubs.er.usgs.gov/> (last accessed 14 January 2022; now redirects to <https://pubs.usgs.gov/>).

³⁰ George H. Billingsley and Haydee M. Hampton, “Physiographic Rim of the Grand Canyon, Arizona”, *U.S. Geological Survey, Open-File Report 99-30* (1999), 1 sheet, scale 1:250,000, and digital database as ARC/INFO export files. [The URL cited in the original essay as edited in 1999 was <http://wrgis.wr.usgs.gov>; a paper copy of the map could be ordered from the USGS. Today the map is available only as a downloadable PDF file, <http://wrgis.wr.usgs.gov/open-file/of99-30/gcrim.pdf> (accessed 26 November 2011; bad link in December 2021); the digital data with which it was created are still accessible, through the index page <http://wrgis.wr.usgs.gov/open-file/of99-30/>; bad link in December 2021.)] [Note: This map is also reproduced herein (reduced significantly to page size); see the introductory section on “[Geographical Coverage](#)”.]

digital format. It should be noted that until the advent of digital production such maps were not usually produced in color; increasingly, only those which have been preapproved for publication in one of many formal map-publication categories are published in colors.

Environmental and Administrative Gray Literature

ENVIRONMENTAL STUDIES embrace a hugely diverse number of topics, ranging from organismal biology to physical and chemical aspects of waters and the atmosphere. So often the organismal and other studies are interrelated that I group them together in this discussion, but I segregate them in the topical parts of the bibliography in response to researchers' needs.

In the Grand Canyon region, as well as everywhere, environmental studies have shifted from individual and institutional initiatives to programs of research that are administratively managed by legislative or judicial mandate or with the official sanction of government oversight agencies (for example, the National Park Service). Comprehensive results of scientific research are being recorded and publicly distributed in summary reports and environmental impact statements, while the traditional scholarly journals usually publish more focused and interpretive aspects of research.

Modern administrative directives provide for meticulously documented studies of the predicted impact that changes to the landscape or its use will have on the quality of the environment and the impacts such changes may have on human endeavors. This has created a bewildering panalogy of documents—preliminary, final, and revised—that provide administrative direction and remedial courses of action in response to a multitude of implementary scenarios. These documents also provide all kinds of environmental data that not only provide the basis for making evaluations, but also capture present conditions for many aspects of the environment.

Management documents within the gray-literature genre can range from the aesthetic qualities of “quiet” in the national park, as impacted by low aircraft overflights³¹

³¹ For example, U.S. Federal Aviation Administration, *Written Reevaluation; Notice of Clarification; Environmental Assessment; Special Flight Rules in the Vicinity of Grand Canyon National Park* (U.S. Federal Aviation Administration [Washington, D.C.], 1997), 30 pp., appendices. (Prepared by William J. Marx, Ann M. Hooker, Ernestine Hunter, Jake A. Plante, Gregg G. Gleaming, Amanda S. Rapoza, John R. D'Aprile, Paul G. Gerbi, Fred B. Bankert, William J. Willkie, Kimberly C. Hughes, Wendi L. Baldwin, and Mylinda H. Green [*cf.* pp. 27-30]. [First leaf is transmittal sheet signed by Reginald C. Matthews. Received accompanied by 34-page document headed: “4910-13 / Department of Transportation / Federal Aviation Administration / 14 CFR Parts 91, 93, 121, and 135 / [Docket No. 28537; Amendment Nos. 91-253, 93-73, 121-262, Special Flight Rules in the vicinity of Grand Canyon National Park [*square bracket not closed*] / Agency: Federal Aviation Administration (FAA), DOT / Action: Notice of clarification: request for comments. Dates: Comments must be received on or before (insert 60 days from date of publication)”. Apparently a draft of item to appear in the *Federal Register*, but with signature of John S. Walker, hand-dated 27 October 1997.]

or outboard motors on the Colorado River³², to the impact of human visitation of historic sites on breeding populations of bats³³. Other documents address concerns usually beyond the immediate notice of the park visitor; for example, sewage management.³⁴

Present concerns in the national park relate to environmental aesthetics such as natural quiet and to such problems of visitation as overcrowding. (When this essay was first written in the 1990s, these were current concerns; they still are.) There are a great many articles that pertain to these issues, and they increase in number; a variety of plans are in the process of implementation or under study. These include all kinds of Environmental Assessment documents, Management Plans, Findings of No Significant Impact, Records of Decision, and so forth. These documents may be released separately as a matter of public record (such as those cited above), publicly posted as a matter of legal announcements in the *Federal Register*³⁵, or formally published in a book that is intended to serve as research documentation of the evaluation process³⁶.

Interestingly, research conclusions published under a formal imprint such as the National Academy Press would otherwise be considered gray literature without the imprint. This book is perfect-bound, has the appearance of a book, and is available by purchase from the publisher. On the other hand, a similarly crafted book³⁷ is as well documented and produced, but it lacks an imprint and is available from the Commission (upon request without charge) or from the National Technical Information Service (with a charge). The overall purpose of each product is the same, but the cachet of a well known

³² U.S. National Park Service (Grand Canyon National Park), *Colorado River Management Plan; December 1979* (U.S. National Park Service, Grand Canyon National Park), separately paginated sections.

[U.S. National Park Service,] Grand Canyon National Park, Colorado River Management Plan Team, *Summary of public comment from the 1997 Colorado River Management Plan Scoping Process* (no imprint), separately paginated sections in one document.

³³ U.S. National Park Service, [Grand Canyon National Park], *Draft Environmental Assessment : Bat Cave Restoration, Grand Canyon National Park* (no imprint), 8 pp. [Author determined through other sources: Kim Crumbo.]

³⁴ Kennedy Engineers, *Master Sewage Study, Grand Canyon National Park, Arizona* (Kennedy Engineers, San Francisco, 1966, under contract to U.S. National Park Service), [ca. 40 pp.].

U.S. National Park Service [Denver Service Center], *Environmental Assessment : Phantom Ranch Sewage Treatment Facilities, Grand Canyon National Park, Arizona* (U.S. National Park Service, Denver, 1980), 22 pp.

³⁵ For example, John L. England, "Endangered and Threatened Wildlife and Plants : Final Rule to List the Kanab Ambersnail as Endangered", *Federal Register*, Vol. 57, no. 75 (April 17, 1990), pp. 13657-13661.

³⁶ U.S. National Research Council (Commission on Physical Sciences, Mathematics, and Resources, Water Science and Technology Board, Committee to Review the Glen Canyon Environmental Studies), *River and Dam Management. A Review of the Bureau of Reclamation's Glen Canyon Environmental Studies* (National Academy Press, Washington, D.C., 1987), 203 pp. [N.B.: This book also includes a list of documents reviewed by the committee (Appendix A, pp. 127-140) which includes some miscellaneous reports of the Glen Canyon Environmental Studies.]

³⁷ Western Water Policy Review Advisory Commission, *Water in the West: Challenge for the Next Century : Report of the Western Water Policy Review Advisory Commission* (no imprint, 1998), separately paginated sections [418+ pp.].

publisher, such as the publications arm of the National Academy of Sciences, seems to elevate such documents from the category of gray literature.

By and large, the majority of environmental gray literature is that of government agencies. It is therefore easy to make the assumption that most of these documents will also have peculiarly segmented citations, reflecting the arrangement of pertinent information on the cover pages of these documents, that the authorship credit may be to a confoundingly bureaucratic string of commissions and committees, and that titularly similar documents may exist.³⁸ (This is not always the case. One of the most important gray literature documents of recent years for the region of interest here is the *General Management Plan and Environmental Impact Statement* for Grand Canyon National Park.) Not only is the topic of great significance to the administration of the national park and the public's use of the lands, but the documents themselves, while having concise information on their cover sheets, are samples of nearly everything that makes them difficult to catalogue and cite.

The *Draft General Management Plan and Environmental Impact Statement* (GMP-EIS)³⁹ was published as a wide, greatly detailed, oversized (11 × 17 inches) wire spiral-bound document ([illustrated at the start of this essay](#)). The *Final General Management Plan and Environmental Impact Statement*⁴⁰, instead of reprinting this cumbersome document as

³⁸ Compare these two documents: **(1)** U.S. Federal Aviation Administration, *Written Reevaluation : Notice of Clarification : Environmental Assessment : Special Flight Rules in the Vicinity of Grand Canyon National Park* (U.S. Federal Aviation Administration [Washington, D.C.], 1997), 30 pp., appendices. (Prepared by William J. Marx, Ann M. Hooker, Ernestine Hunter, Jake A. Plante, Gregg G. Gleming, Amanda S. Rapoza, John R. D'Aprile, Paul G. Gerbi, Fred B. Bankert, William J. Willkie, Kimberly C. Hughes, Wendi L. Baldwin, and Mylinda H. Green [cf. pp. 27-30]. [First leaf is transmittal sheet signed by Reginald C. Matthews. Received accompanied by 34-page document headed: "4910-13 / Department of Transportation / Federal Aviation Administration / 14 CFR Parts 91, 93, 121, and 135 / [Docket No. 28537; Amendment Nos. 91-253, 93-73, 121-262, Special Flight Rules in the vicinity of Grand Canyon National Park [square bracket not closed] / Agency: Federal Aviation Administration (FAA), DOT / Action: Notice of clarification: request for comments. Dates: Comments must be received on or before (insert 60 days from date of publication)". Apparently a draft of item to appear in the *Federal Register*, but with signature of John S. Walker, hand-dated 27 October 1997.]

(2) U.S. Federal Aviation Administration, *Written Reevaluation : Environmental Assessment : Special Flight Rules in the Vicinity of Grand Canyon National Park* (U.S. Federal Aviation Administration, [Washington, D.C.], 1997), 26 pp., appendices. (Prepared by William J. Marx, Reginald C. Matthews, John M. Gulding, Ann M. Hooker, Ernestine Hunter, Jake A. Plante, Alan V. Trickey, Donna G. Warren, Gregg G. Fleming, Amanda S. Rapoza, John R. D'Aprile, Paul J. Gerbi, Fred B. Bankert, William J. Willkie, Kimberly C. Hughes, Wendi L. Baldwin, and Mylinda H. Green [cf. pp. 23-26].) [Cover title. Title on document cover sheet: *Reevaluation of Final Environmental Assessment : Proposed Revisions to Special Flight Rules in the Vicinity of Grand Canyon National Park*. First leaf is "Executive Correspondence" memorandum signed by Nancy B. Kalinowski: "Environmental Assessment; Finding of No Significant Impact; Reevaluation; Special Flight Rules in the vicinity of Grand Canyon National Park".]

³⁹ U.S. National Park Service, *Draft General Management Plan and Environmental Impact Statement, Grand Canyon National Park, Coconino and Mohave Counties, Arizona* (U.S. National Park Service, in cooperation with U.S. Forest Service, 1995), 321 pp. [Oversized document, cover illustrated [at the beginning of this essay](#).]

⁴⁰ U.S. National Park Service, *Final General Management Plan and Environmental Impact Statement, Grand Canyon National Park, Coconino and Mohave Counties, Arizona* (U.S. National Park Service, in cooperation with

a revised and updated edition, simply listed by line number all the revisions to be applied to the Draft GMP–EIS; it is printed on conventionally sized paper (8½ × 11 inches) with card-stock covers, side-stapled with three heavy-duty staples. Libraries may store these two documents in separate places because of the differences in size and binding. An author who cites just the Final GMP–EIS does a disservice to all those who need to examine the document because the Draft GMP–EIS is—unusually—a *part* of the final documentation. The Final GMP refers specifically to the Draft GMP–EIS, and the two must be used together. This relationship may not be caught in cataloguing the Final GMP–EIS, and it is feasible, too, that the Draft GMP–EIS could be discarded by a less attentive librarian in light of there being a “final” version.

Other gray-literature documents are workshop proceedings. These are most likely to be among the most confusing to catalogue because the cover data are not necessarily easily categorized. One example of a problematical citation from a workshop proceedings adds the peculiarity of an unconventional authorship.⁴¹ This example fails to clearly identify the issuing agency, avoids listing authors by name but instead lists them by their titles and functions, and carries the date it was prepared as well as the date it was distributed. Some of the data are interpreted from other evidence in the volume. The user can thus see just how differently this citation can be listed in references and how many different ways there can be to catalogue it. On the other hand, some such workshop proceedings are much more clearly cited⁴², thus they will be likely to be found more quickly in a catalog.

The Glen Canyon Environmental Studies, in fact, probably produced the most wide-ranging group of gray literature and conventional literature combined. (The name referred to Glen Canyon Dam, while its research was conducted principally downstream through lower Glen, Marble, and Grand Canyons.) It was an important research program, conducted in phases over two decades, embracing physical, biological, and environmental sciences, archaeological surveys, and issues of concern to Native Americans and recreational industries, and socio-economic studies. A first comprehensive overview was compiled by

U.S. Forest Service, 1995), 179 pp. [This item refers to line changes in the Draft plan; see the oversized document cited just above.]

⁴¹ Glen Canyon Environmental Studies Senior Scientist, Glen Canyon Environmental Studies Program Manager, and a small group of scientific experts, “Interim Flows for Grand Canyon; Recommendations for Interim Operating Procedures for Glen Canyon Dam”, separately paginated section in *Long-Term Monitoring Workshop for the Grand Canyon, October 5-6, Irvine, California* (National Research Council, Water Science and Technology Board, 1992), 19 pp. [Document dated 1991, prepared for U.S. Bureau of Reclamation and GCES cooperating agencies, from Center for Environmental Studies, Arizona State University.]

⁴² Grand Canyon Trust, with U.S. Bureau of Reclamation, *The Colorado River Workshop : Issues, Ideas, and Directions : February 26-28, 1996, Phoenix, Arizona. Proceedings Report* (Grand Canyon Trust, Flagstaff, Arizona, 1996), 256 pp.

the U.S. National Research Council⁴³, but the studies continued for another decade to culminate in an Environmental Impact Statement for the operation of Glen Canyon Dam⁴⁴. The amount of conventionally published research and discussion on GCES-related topics is tremendous. But so much exists just among preliminary and final reports from principal investigators, filed with GCES, that it has been worthwhile to include in THE GRAND CANON a separate part listing these documents, compiled by Richard Quartaroli who then was the research librarian for the Glen Canyon Environmental Studies program.⁴⁵

Conclusion

THAT THE FORMULATED citations in some parts of THE GRAND CANON are so broken up by “less tidy” citations of gray literature is testimony to the pervasive and persuasive importance of such products. One can get a feel for it just by browsing, particularly in the parts on Administration, Environment, and Geology. I hope that the very few examples in this discussion show the reader that no bibliography can adequately cover the gigantic volume of material that can be found only in the most specialized and comprehensive collections; though it may try. To try to gather it all would be a prodigious task, one calling for the extended periods of time of many capable searchers. I hope, too, that the examples that do appear throughout THE GRAND CANON bring to light the problems of something even as simple as citing gray literature, that even the most capable of bibliographers will resort to invention; the same, too, with writers when they cite these items. This is what makes bibliography both art and science—not to mention the fixation of “inspired idiots”.⁴⁶

⁴³ U.S. National Research Council (Commission on Physical Sciences, Mathematics, and Resources, Water Science and Technology Board, Committee to Review the Glen Canyon Environmental Studies), *River and Dam Management. A Review of the Bureau of Reclamation's Glen Canyon Environmental Studies* (National Academy Press, Washington, D.C., 1987), 203 pp. [Note: This book also includes a list of documents reviewed by the committee (Appendix A, pp. 127-140) which includes some miscellaneous reports of the Glen Canyon Environmental Studies.]

⁴⁴ U.S. Bureau of Reclamation, *Operation of Glen Canyon Dam; Final Environmental Impact Statement. March 1995* (U.S. Bureau of Reclamation, 1995), 337 pp. + individually paginated appendices. Also accompanied by volumes, *Comments and responses*, 156 pp.; *Summary*, 73 pp.

⁴⁵ See Part 20 of THE GRAND CANON Volume 1/Part B.

⁴⁶ [See p. 557 herein.](#)