



ATLAS OF YELLOWSTONE, SECOND EDITION

Edited by W. Andrew Marcus, James E. Meacham, Ann W. Rodman, Alethea Y. Steingisser, and Justin T. Menke

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YELLOWSTONE NATIONAL PARK HAS A STRONG CLAIM to being the most-studied national park in the United States. In a recent comprehensive survey of park-related peer-reviewed research articles published since the 1970s, Jelena Vukomanovic and Joshua Randall (2021) found that Yellowstone National Park accounts for 36.2% of all such studies, with Everglades National Park coming in a distant second with 6.8%. This fact would surprise exactly zero readers of *Atlas of Yellowstone, Second Edition*, brought out in 2022 under the aegis of the University of Oregon's InfoGraphics Lab, given the breathtaking scope of topics so expertly compiled, interpreted, and mapped in this single gorgeous volume.

The first edition of the atlas was published in 2012, although the idea originated almost a decade earlier during planning for an Advanced Cartography course in the Department of Geography at the University of Oregon, led by two of the project's editors, W. Andrew Marcus and James Meacham. Having settled on Yellowstone as a central theme for the class, and "emboldened by several microbrews" (322), Marcus and Meacham thought they might as well take it a step further and go ahead and create an *Atlas of Yellowstone*, too. That decision launched the creation of a momentous, much-awarded publication that merely took "[a]lmost ten years, more than 100 expert contributors, many Yellowstone trips, dozens of cartographers (many of them students), and about 300 pages" (322).

As they recount in the Foreword to the second edition, the editors found that even before finishing the first edition they already wanted to make a second: "we realized we did not have the time or funding to tell all the Yellowstone stories we wanted to tell" (xx), noting in particular: the tales that GPS tracking might tell about animals' lives; the opportunities to further discuss Yellowstone's impacts on park architecture and culture; additional stories to tell of Native American history; and much more. "As a result," they wrote, "the *Second Edition* is 72 pages longer and contains 50 percent new, or extensively revisited, material" (xx). Another impetus to creation of the second edition in 2022 was that such an effort could coincide with the 150th anniversary of Yellowstone as the first national park in the world. (To the editors' credit, while the sesquicentennial is acknowledged a number of times in the text, the atlas never once feels like a gratuitous celebration of that fact.)

Upon first picking up the second edition, the reader is immediately struck by the very "Yellowstone-ness" of the cover image by Tom Murphy: Lion Geyser erupting in the mid-ground, the superheated steam lifting past snowbanks lining a brown thermal area and mixing with the white clouds in a deep blue sky, with equally deep blue Heart Spring in the foreground, the pool's geothermal processes encrusting its edges with white sinter (a solid chemical mass formed by pressure or heat without melting) and orange-brown algae. The atlas is a large, hardcover volume,



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about 13½” tall by 9¾” wide. After perusing the front matter—a word or two about the many supporters of both editions, acknowledgments of the hundreds of individuals who contributed to the new volume, prefaces to both editions, and the editors’ Foreword—the reader turns to the primary content.

The main body of the volume is divided into six principal sections, each introduced by a scholar’s thought-provoking essay for context and consisting of a series of two-page spreads, termed by the editors *page pairs*—“each story *must* be told in two pages” (xx), they declared. The page pairs are the true heart of this work. Each page pair was prepared under the guidance of contributing topic experts—two or more experts per subject was typical, some 130 in all—and develops a specific story related to the section’s theme. It is an atlas, after all, so maps are the chief means by which those stories are told, but they are not the only way. The maps are accompanied by informative background text and, in most of the spreads, graphs, charts, photographs, and/or illustrations in different combinations that best tell the story of their given topic.

The six sections cover many aspects of Yellowstone and Grand Teton National Parks and their surrounding areas. “Yellowstone National Park,” with its six page pairs, situates the park broadly in its geographical and cultural contexts, and includes pages illustrating oblique bird’s-eye views of the park and its surrounding lands, describing its legacy as the first national park, and examining the public lands that surround the park. “History” focuses on archaeology, Native American history, and early surveys and exploration, providing fourteen spreads on topics such as the flight of the Nez Perce tribe through the park, early maps of the park, and the history of scientific research in Yellowstone. The third section, “For the People,” uses its fifteen page pairs to tell the story of the current park *as* a park, touching on the development of the built environment, park architecture, park visitation, and light pollution and the night sky. “Human Geography” tells of the development and impact of the human communities around the Yellowstone region: thirteen spreads cover topics such as land ownership, population, race and ethnicity, economic impact, and agriculture. “Physical Geography,” the longest section with thirty-eight page pairs, focuses on the elements of the physical landscape, with spreads on topics such as landforms, geologic evolution, glaciers, geysers, precipitation, vegetation, and fire history. The final main section, “Wildlife,” tells the stories of the park’s fauna and

the rich studies scientists have made in this domain. Its nineteen page pairs introduce the reader to Yellowstone’s bison, elk, wolves—including the affecting individual story of Wolf 911M—birds, fish, and other creatures.

The final hundred pages of the volume comprise reference materials, including a series of beautiful reference maps of the region that the atlas terms the Greater Yellowstone Area (at 1:500,000 scale) and of Yellowstone and Grand Teton National Parks (at 1:100,000 scale). These maps are accompanied by a gazetteer to help readers find features and locales described throughout the text, an index to US Geological Survey maps of the area, a county map of the Greater Yellowstone Area, a wonderful guide to the origins of cultural and physical place names in the parks and their surrounding area, and a list of vertebrate species found in both parks. Finally, the Afterword (reprinted from the first edition) describes the process of creating *Atlas of Yellowstone*; a Sources section provides information on the experts, data sets, and sources used in each page pair, essay, and reference resource; and, thankfully, an index.

In the Afterword, the editors tell us that this atlas was always intended to be a synthesis, a work to “make scholarly materials accessible to the public and create new knowledge through such syntheses rather than primary data gathering” (323). “Our aspiration,” they write, “was to create a comprehensive, state-of-the-art reference volume that centered on Yellowstone and Grand Teton National Parks. The target audience was to be visitors, educators, resource managers, and scholars—essentially anyone with a deep interest in Yellowstone” (323). In the Foreword they also indicate that they wanted to retain the four major themes introduced in the first edition: “that Yellowstone is connected to surrounding areas, that it is dynamic and ever-changing, that humans are as much a part of Yellowstone as the wildlife for which it is famous, and that Yellowstone is extraordinary” (xx). They also sought in this second edition to introduce a fifth theme in acknowledgment of the park’s 150th anniversary, “to focus more on the park and its influence through a theme we called ‘Yellowstone’s reach’” (xx).

In all this, it must be said, the editors and their many contributors succeeded to great admiration. Firstly, in leafing through the volume, the reader cannot help but be struck at the sheer beauty and variety of the maps, graphs, illustrations, and photos in all their remarkable range of

size, color, scale, design, and emphasis. It is the rich cartography on which this work is based that stands as its greatest strength, and a special mention should be made of the many student cartographers who made such excellent contributions. Early on, the editors noted that “[t]he *Atlas of Yellowstone* tells many stories across many different scales. . . . The spatial extent, time period covered, and scale of maps in this atlas are determined by the information necessary to tell a story and by available expertise and geographic data” (8). This was the right choice: virtually every page pair has its own unique map (or very effective sequence of maps) designed specifically to share information on that particular topic. While I cannot say so definitively, it appears that no basemap was repeated among topics, and this variety enhanced the quality of the volume as an aesthetic and communicative work.

The breadth of topics (some one hundred and five in all) made the parks, their surrounding landscape, physical features, and wildlife come to life; a reader cannot leave this atlas without feeling like Yellowstone is now a much more familiar friend. The atlas makes great use of map series and of small multiples in graphs, for instance in the “Traffic” page pair, which offers many graph comparisons as well as effective use of line widths to illustrate traffic flow (68–69). Similar effective combinations of maps and graphs appear in “City Population” (96–97) and “Religion and Politics” (102–103). The “Migratory Landscape”—a story now made possible by modern GPS tracking—is simply but very effectively told through a series of maps reflecting pronghorn, elk, and mule deer migration patterns in connection with subtly-depicted plant “green up” (the progression of spring and summer plant growth; 202–203). One might think “Park Visitation” would be a fairly static, straightforward story to tell, but it comes dynamically alive with effective use of line and bar graphs and proportional symbol maps (70–71). Scattered throughout the volume are individual maps that are utterly striking for their design—thanks in no small part to the rich, detailed data provided to the cartographers.

This is not to say, however, that *Atlas of Yellowstone, Second Edition* is entirely without flaw. The labels on some of the maps—particularly those emphasizing the topography of the park as on pages 6 through 9—are insufficiently contrasted with the base maps through halos or other techniques. A few of the information graphics are not quite what they might be: for instance, in the “Education” spread, 3D boxes are used to compare higher education

institutional enrollment numbers (99), but the human eye is notoriously poor at making note of differences by volume so some other representation would likely have been more effective. While acknowledging that copyediting such a work with so many contributors is an enormous undertaking, there are a smattering of typographical and editorial errors scattered throughout: Obsidian Cliff was rendered in one place as “Obisidian” (22); Mammoth Hot Springs Historic District was written as “Mammoth Hots Springs” (62); and “pray” was used for prey (226). In the page pair on “Jackson and Moran,” about the photographer and the painter who accompanied the 1871 Hayden survey, the text indicates that “Jackson captured the area’s remarkable landscapes on film” (43)—only he captured images on glass plates, not on film. The definition of labor force participation in the spread on labor and employment is incorrect, saying that it is “the percentage of people who are employed or seeking employment divided by the non-institutional, civilian, working-age population” (106) when it is the *number* of people employed or seeking employment and not the *percentage*. A reference to western cutthroat trout appears on the “Fish” page pair when westslope cutthroat was probably intended (230). A handful of other typos and errors of these kinds also appeared elsewhere, standing out only because so much of the rest of the text had been so beautifully managed.

Another minor concern is the quality of the physical book. Having now gone through its pages a few, but not an unusual, number of times, it must be noted that the binding thread at the spine is starting to show more than I might expect for a new book, particularly in the innermost fold of each signature (bound section of folded sheets) and between pages within each signature. That may indicate a slightly weak binding that may worsen over time.

In terms of content, while the variety of maps was very welcome, some of the map apparatuses might have been standardized among maps, such as the way that detail maps were identified (sometimes they were numbered on the locator maps, sometimes not), and more consistency in graph designs would be beneficial (for instance, bison counts and removals were illustrated differently than elk counts and removals). The section on physical geography does outweigh any other section, and perhaps a third edition could see an additional expansion of the wildlife section, as more geospatial data is gathered through GPS and other studies; in particular it is notable that insects and birds, which are such a crucial part of the ecosystem, only

got one page spread each, while fish only received two. A separate full section on the trees and plants of the parks might also be a welcome addition. While it seems entirely greedy to ask for yet more, a few of the page pairs seemed like they missed an opportunity to be brought fully up-to-date in the second edition. The “Road History” topic, for instance, stopped in 1956 when no doubt there have been many newer road developments (54–55). Finally, though the Sources section was very helpful in identifying sources for the data presented throughout the atlas, at times I really wanted some additional bibliographic resources to turn to as a kind of “for further reading” connected with each topic. To be sure, it would probably be very hard to pull that together in any way that wouldn’t simply overwhelm the editors or the references section, but if one were to dream of additional options, that would be a grand one.

The true value of this stellar work is as an introduction to the breadth of knowledge that is being generated by researchers in many disciplines at Yellowstone and Grand Teton National Parks and their surrounding areas. It is outstanding as a work of cartography and would serve especially well to educate aspiring cartographers. Because the atlas tells the story of its own creation and offers such a variety of cartographic approaches, it could almost be a

textbook—or better than a textbook, an exemplar of excellent cartographic practice. Scattered throughout the atlas are specific references that would aid in such an effort; the text introducing the two sets of reference maps (243, 256) explicitly spells out some of the cartographic choices that were made: why a given scale was chosen and even the definition of scale in the first place, why some streams were exaggerated and simplified while others were eliminated, why roads are selectively shown, and why the relief was shaded as it was.

As it is a reference work, it is may be unlikely that most people would read *Atlas of Yellowstone, Second Edition* straight through, but it absolutely rewards just such a reading. The reader gets such a rich sense of the place and its evolution, environments, people, and animal occupants. This is a work for anyone who loves Yellowstone, or who would like to love it more.

REFERENCE

- Vukomanovic, Jelena, and Joshua Randall. 2021. “Research trends in U.S. national parks, the world’s ‘living laboratories.’” *Conservation Science and Practice* 3 (6): 1–15. <https://doi.org/10.1111/csp2.414>.

