Hummingbird until well into his project. His plates were executed using specimens as the only reference, and are thus not always accurate in pose and background. If there are any such slips here, they cannot be blamed on ignorance. John C. Arvin has spent much time with hummingbirds throughout the hemisphere, and John P. O’Neill reviewed the plates for accuracy.

_Hummingbirds_ is also much more affordable. Many of those “golden age” books were sold in parts, by subscription, at a price the vast majority could not afford. This first volume of _Hummingbirds_ costs a very modest $60—though the limited edition boxed set, with a special binding and three signed prints, will set you back $450.

Publishing a book like this at a price almost anyone can afford was feasible only because work was done entirely “in house” at the Gorgas Science Foundation. The two most important sentences in the entire book may well be these, from the preface:

_The world of publishing has changed dramatically in the last few years. With a creative staff and today’s new technology, it is now possible for small organizations such as ours to follow our own vision, take it directly to a printing house and distribute it to the public._

If more authors and organizations embrace this new paradigm and produce books like this first volume of _Hummingbirds_, then perhaps a new golden age is just dawning.

**A Significant Reference Work—and Many Hours of Reading Enjoyment**

• a review by **W. Ross Silcock**

_Birds of Montana_

by Jeffrey S. Marks, Paul Hendricks, and Daniel Casey

_Buteo Books, 2016

672 pages, $75—softcover

ABA Sales–Buteo Books #BBMT

_The_ first impression on picking this book up—“hefting” might be the more appropriate verb—is one of great size: Weighing in at 5.1 lbs, _Birds of Montana_ has an impressive footprint of 9 x 11 x 2 inches. But the book is also big in the ways that truly count. Its 659 pages are incredibly comprehensive, and include at least two major sections that could well have been stand-alone literary efforts on their own. The “Literature Cited” section is a bibliography of Montana ornithology that comes to a mind-boggling single-spaced 57 pages of 9-point type, comprising more than 2,000 publications; the 20-page history of Montana ornithology is just as thorough and informative.

As its title suggests, _Birds of Montana_ is a representative of the genre generally referred to as “state bird books.” Their readership is drawn most heavily from researchers and serious amateur ornithologists, but any state book, even those (and there are many) that are seriously out of date, is an invaluable record in time, a snapshot, of the status of a state’s avifauna. With the needs of the future in mind, the authors of _Birds of Montana_ describe their work “as a benchmark against which…changes in Montana’s bird populations can be measured” by the birders and researchers of the future.

As one of the authors who labored to help produce _Birds of Nebraska_ (2001), I understand the time and commitment that went into producing this impressive tome, “the first comprehensive reference on the state’s birds since [Aretas A.] Saunders published _A Distributional List of the Birds of Montana_ in 1921.” Now, 95 years later, this new volume is a thorough review of the status, distribution, abundance, ecology, and conservation of the 433 bird species recorded in the nearly 130 years since Montana attained statehood. Truly comprehensive, the book is also well written, and much easier to read than its length might lead one to expect.

The first three chapters of _Birds of Montana_ provide many fascinating insights. Chapter 1, “The State of Montana: Geography, Topography, Habitats, and Ecoregions,” is an excellent overview of four topics that are essential to understanding bird distribution, illustrated with color photographs of Montana’s varied habitats. The map on the flyleaf, however, would be more helpful if the state’s waterways were more clearly marked; the leaf-vein-like lines that I presume indicate rivers are barely discernible.

Chapter 2, “History of Montana Ornithology,” presents a chronological record of natural history explorations and expeditions in the state; this is the first time that virtually all of the historical figures and events contributing to our ornithological knowledge of Montana have been discussed in one place. While the state of documentation necessarily puts the focus here on European and white American naturalists, the authors “fully appreciate that many of the people who inhabited the West before Europeans arrived had a detailed knowledge of bird life.” The Blackfoot tribe, for example, had a name for the California Condor, which they recognized as a “rare visi-
tor from the south that fed on bison remains," an observation consistent with other nineteenth-century reports of the species on the plains of Montana and Alberta.

Chapter 3, “Bird Conservation in Montana,” is a straightforward list and brief discussion of organizations, governmental and not, working on conservation in Montana. The last section of this chapter is devoted to birds and anthropogenic climate change. The authors note that average temperatures in Montana “have increased 1–4 degrees F (depending on the season) over the past 55 years” and state that “accelerated climate change will influence many…drivers of habitat conditions and the birds that rely on them.” They predict that “consideration of the effects of climate change on landscapes, habitats, and bird populations will be a central theme of conservation in Montana for decades to come.”

The species accounts follow. Birds of Montana derives much of its information from the more than 500,000 records in the massive Montana Bird Distribution database, supplemented by data collected between 1996 and 2010 for the U.S. Geological Survey’s Breeding Bird Survey. With ever more records and ever more reliable records, eBird has also become an important source for the authors of state books; the authors of Birds of Montana made use of the material there and of posts from the Montana Online Birding Group, noting that in both cases they “did not accept at face value all ‘records’ from these sources and worked very hard to evaluate many of the reports, including contacting the observers. In the end, [they] made many judgment calls in accepting or rejecting reports that were not supported by photographic evidence.” In my own experience, the sheer number of reports included in eBird provides some context for judging records that might be considered equivocal: The more “records” (I prefer to call them “reports” until documented) there are, the easier it is to detect outliers that may actually be correct.

Nevertheless, it can still be vexing to decide which species to include in the main body of a state book. Following the official list sanctioned by the state or provincial records committee seems an obvious choice, but the high standard of documentation set by most committees can leave a few species in limbo. Birds of Montana points out a good example: There are only two well-prepared written documentations of the Bell’s Vireo for Montana, each pertaining to a different individual; the Montana Rare Birds Committee requires two written documentations for a single bird before admitting the species to the official state list. Birds of Montana includes this species in the main accounts, for the authors are familiar with the observers involved and believe that both sightings are correct. I agree with that approach.

Most states also maintain a list of reports that might be correct but are still subject to some doubt; some such records are of birds correctly identified but thought to have escaped or been released (“provenance unknown”), but most are simply reports without acceptable documentation. Birds of Montana calls this a “supplemental list,” while many states use the term “hypothetical list.” Neither adjective fully conveys the purpose of such a list; I prefer “suspense list,” which implies final resolution is not possible now but may be forthcoming as additional evidence (hopefully) accumulates.

The species accounts in Birds of Montana are well organized, each beginning with a general paragraph followed by several subsections: Subspecies, Status and Occurrence, Habitat, Conservation, Historical Notes, Contemporary Work, and Banded Birds. The introductory paragraphs indicate the global range of the species and offer other interesting information; I found these paragraphs readable and informative, a good lead-in to the “meat” of each species account.

For polytypic species, the next section is a brief list of the subspecies that occur in the state; I wish these sections included more taxonomic context, which would make it easier for the reader to understand where each subspecies fits into the species’ overall range. It would also be helpful if controversial or otherwise unsettled taxonomic issues, such as the status of the redpolls, were discussed here at greater length; in the case of the redpolls, that important—and very topical—discussion is reserved for the historical notes.
“Status and Occurrence” will be the go-to section for many readers, providing information about overall occurrence, the timing and location of migration (early, peak, and late dates), numbers to be expected, and breeding phenology. Birds of Montana deals with these data in one to a few paragraphs whose content varies from species to species. Some of that information is quickly found here—notably the list of specimens collected, usually set apart in its own paragraph—but details of migration and breeding phenology are less easy to locate in the text. It would be easier to find that information if it were more clearly organized by season, with each season given a distinct heading.

It can be difficult to describe the overall status of any given species in a state with consistency and precision. Many books conflate the terms used for relative abundance and for frequency of occurrence, especially in the case of species whose occurrence is less than annual. To designate abundance, Birds of Montana uses a widely adopted system based on the number of birds an experienced observer might expect in a day’s birding. Species ranked as abundant (>100 individuals daily), common (26–100), fairly common (6–25), or uncommon (1–6) are considered “regular” (essentially annual) in occurrence.

For species of less than annual occurrence in the state, Birds of Montana defines three categories: “occasional” for species with >20 records but of less than annual occurrence, “casual” for species with <20 records but which may breed, and “vagrant” for species with <10 records. A simpler system might use only the two terms “casual” and “accidental,” with the latter restricted to birds that have occurred only once ever in a state and are not expected to be found again. If a species has occurred more than once, especially over a period of, say, 10 years, there is almost always a pattern of occurrence, whether geographic or temporal; such a species should be listed as casual. Species without a clear seasonal pattern of occurrence are more often escapes or releases.

Of the remaining sections in each species account, I found the one headed “Conservation” a particularly useful resource; it combines a summary of conservation efforts with thorough ecological discussions. “Historical Notes” is an important and necessary section, too, and is very well done. The information presented under the headings “Contemporary Work” and “Banded Birds,” on the other hand, could have been more usefully dispersed to be read with related information about migration, breeding, winter occurrence, or taxonomy.

Birds of Montana is an impressive work. The state has a wide range of geological, historical, cultural, and environmental features, and hosts a large avifauna for its northerly location. Despite the minor criticisms raised above, I heartily recommend this book. It will provide many hours of reading enjoyment, quite apart from its significant value as a reference.

A Thousand Years of Extinctions on the Islands of Hawai‘i

Extinct Birds of Hawai‘i

by Michael Walther


238 pages, $21.95–hardcover

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Most of Hawai‘i’s endemic birds are endangered, some critically, as are many other animals and plants there. Before human settlement, the islands’ life forms had become almost freakishly abundant and diverse—“endless forms most beautiful and most wonderful,” as Darwin described evolution’s workings. Then humans arrived, and kept arriving, and their actions, both intentional and accidental, have reduced the biota to a fraction of its original extent. People bring complications, and their presence creates a tangle of ecological, political, economic, cultural and philosophical challenges to the survival of endangered species. Much has been lost, and much more will probably be lost in the coming years.

Extinction as a phenomenon has been stubbornly ignored for most of the past 150 years. British scientist Alfred Newton noted in an 1892 letter to R. C. L. Perkins, the legendary Hawai‘i-based bird and insect collector, “I know from experience that the belief in the continued existence of an extinct species dies very hard—people can’t understand why things cease to exist and therefore think that they go on.” To a degree, his words remain true today: People still have a difficult time accepting that birds can go extinct. More insidiously, we have had a difficult time understanding why it would matter in our own lives. Part of the equation is our lack of understanding of the species at risk: what they are, what their roles have been in nature’s tangled skein, and what is lost when they are gone.

Michael Walther and illustrator Julian Hume’s concise but compulsively readable account, a welcome addition to