This book is intended as a relatively condensed guide to the natural history of the Hawaiian Islands, a vast and complex—but fascinating—field. In addition to providing general reading and reference material, it may also prove useful as a text for college-level courses on the natural history of the archipelago.

In teaching such classes at both the university and community college levels in Hawai‘i, I found that various books or parts of them provided excellent coverage of a number of Hawaiian natural history subjects. An early classic is the monumental 1915 work by William A. Bryan, a few parts of which were updated by Elwood C. Zimmerman in his 1948 publication. Among the most comprehensive recent publications are the slightly revised 1980 edition of Sherwin Carlquist’s book (although essentially the entire text was completed in 1968); an evocative 1988 work by John L. Culliney; the 1972 and 1994 compilations edited by E. Alison Kay; and the 1998 edition of the *Atlas of Hawai‘i*, with Sonia P. Juvik and James O. Juvik as editors.

No single one of these publications, however, contains up-to-date coverage of all of the relevant subjects, including related ecological and evolutionary aspects. Nor do most simultaneously maintain the depth of discussion at a relatively uniform level. Thus, this volume was prepared in an attempt to fill these perceived needs.

**PLAN OF WORK**

**Content**

Each chapter focuses on a relatively discrete subject, with the depth of coverage approximating what might be appropriate for a single college lecture. To keep the volume a manageable length, the chapters on biology often concentrate on a few representative cases, rather than attempting to cover a large number of examples in a superficial fashion. If the volume is used as a text, this necessary loss of detail will be inconsequential because many instructors will undoubtedly base their lectures on their own considerable knowledge of various natural history subjects and assign corresponding chapters only as introductory or supplemental reading.

**References**

Pertinent publications suggested for further reading are listed at the end of each chapter. Full bibliographic information regarding these, as well as those cited in the illustration legends and table titles, is given in the annotated References Cited section near the end of the volume.

**Audiovisual Aids**

An attempt has been made to list at least a few pertinent audiovisual sources at the end of each chapter. Equally good or better programs, however, may have been overlooked, and excellent additional ones will undoubtedly appear in the future. Full bibliographic information on these works appears in the annotated Audiovisual Aids section. Because the form (that is, film, cas-
Databases

Essentially all of the numerical and other data appearing in this volume reflect information available as of the end of 1999. In a number of instances, however, this information had already become outdated while the work was in press and will, of course, continue to change. Fortunately, under current plans of the Bernice Pauahi Bishop Museum in Honolulu, timely data updates for many biotic groups will be available through the museum’s maintenance of the Hawaii Biological Survey databases. Significant portions of these information sources are now available on the museum’s website on the World Wide Web at:

http://www.bishopmuseum.org/bishop/HBS/

Further information may be obtained from the museum through the electronic mail address:

hbs@bishopmuseum.org

Terminology and Biological Nomenclature

Words and terms considered especially important in the understanding of a subject are printed in boldface type, usually the first time they appear. When available in standard biological reference works, both English and Hawaiian names of organisms have been listed along with their scientific designations. Also, a list of Hawaiian terms for members of various biotic groups, conveniently arranged under English-name categories, was prepared by Harold W. Kent in 1986.

Hawaiian Language

Spelling and Glossing

The orthography and meanings of Hawaiian words given here, other than locality names, are italicized and follow, as much as possible, the slightly revised 1991 third printing of the revised and enlarged 1986 edition of the Hawaiian-English dictionary of Mary K. Pukui and Samuel H. Elbert. A guide to Hawaiian grammar is available (Elbert and Pukui 1979), with an abbreviated version included in Pukui et al. (1975).

Place Names

In the citing of Hawaiian localities an attempt has been made to conform to the most commonly used current orthography. Thus, the spelling in the 1974 gazetteer of Pukui and colleagues is followed, but the hyphens appearing in most of their compound terms have been omitted and the parts of the terms joined. Exceptions have been made in the case of a few place names,
however, primarily involving those beginning with “Mauna” (mountain), “Pu’u” (hill), and the like. In these, the earlier hyphens have been omitted, but the parts of the term left separated.

**Glossary**

Because this *is* a book about Hawai’i, a Glossary of Hawaiian Place Names mentioned is included near the end of the volume. These original Hawaiian terms are not only inherently interesting in a linguistic sense, but many of them also allow insight regarding matters that were important in the daily life of ancient Hawaiians, as well as about traditional beliefs in the complex interrelationship of humans, nature, and religion.

**English Transcription**

Hawaiian was originally only a spoken language, and the spelling used today was largely standardized by American missionaries in the mid-1820s. To transcribe the spoken language, they used only eleven of the twenty-six letters in the English alphabet: five vowels and seven consonants, even though some of the latter did not exactly reproduce the Hawaiian sounds that they were purported to represent. For example, “k” was used to indicate an original Hawaiian spoken consonant that lay somewhere between the English “t” and “k”—perhaps even closer to the former. In very early historic writing, the “t” was used relatively frequently, as is illustrated by the almost invariable pre-1820 historic spelling of the name of Kamehameha I as “Tamehameha.” Beginning in the later 1820s, however, the written “k” replaced “t.” The letters “r” and “l” seem to have had a similar history, with “l” becoming the one chosen.

**Diacriticals**

In addition, usually beginning only after about the mid-1900s, two diacritical marks not used by the missionaries were added in writing to accurately reflect the original Hawaiian pronunciation. These are the ‘okina or glottal stop (also known in English as hamza) and the kahakō or macron. The marks have been included here for all Hawaiian words; because their presence is essential, not only for proper pronunciation, but also for correct translation or understanding of meaning, their significance should be explained.

The ‘okina, which is effectively an additional consonant, always immediately precedes a vowel, and is indicated by a reversed apostrophe (’). In speaking, this is rendered by momentarily closing the glottis, then suddenly releasing the breath when pronouncing the vowel, much as the sound used before each of the two syllables in the English exclamation “oh-oh!” In a Hawaiian word the ‘okina indicates that a “k”-like sound present in an earlier Polynesian spoken word (and usually still maintained in Polynesian-based speech of areas outside Hawai’i) has been omitted. For example, the ancestral Polynesian word for lizard (and a mythical water dragon) was “moko,” but in Hawaiian this became “mo’o.” In very occasional instances, however, the original pronunciation has been retained, as in the name of an islet off O’ahu: Mokoli’i or “little (li’i) lizard.”

It is interesting that this propensity for ancient Hawaiians to shorten words was sometimes carried even further, as by use of the kahakō (see below) to change the already abbreviated mo’o to mā, seen in the O’ahu locality name Mō’ili’ili or “pebble (‘ili’ili) lizard.” Words with identical series of letters, but with and without the ‘okina, have different meanings (and, of course, pronunciations): “pau” (finished) and “pa’u” (soot).
The *kahakō* or macron, which is used only with a vowel, is represented by a mark (·) above the letter and is indicated in speaking by drawing out the vowel sound somewhat. This diacritical mark is used in written Hawaiian to differentiate between the sounds of long and short vowels as used in the parent Austronesian and derivative Polynesian languages. It effectively replaces one of two consecutive vowels (usually identical, but occasionally different; see Lā'ie in the Glossary). That is, the Hawaiian “*mū*” (destructive insect) (among other meanings) is the derivative or reflex of the ancestral *muu*. Also, this diacritical mark, just as in the case of the *‘okina*, can be used to signify the deletion of one or even more syllables following the marked vowel. This is evinced by the comparison of two treatments of the Hawaiian term “*moku,*” one of whose common meanings is “island.” The word is usually used in its complete form, as in the locality name Mokumanu or “bird *(manu)* island,” but occasionally the final syllable is replaced by a *kahakō*, as in Mōkōlea or “plover *(kōlea)* island.” Just as in the case of the *‘okina*, presence or absence of the *kahakō* completely changes the meaning of an identical series of letters; compare, for instance, “*pa‘ū*” (moist) and “*pā‘ū*” (sarong) with each other, and with the two similar words at the end of the preceding paragraph.

**Miscellany**

As a final note to interpreting the language, the peruser of any significantly long list of Hawaiian proper nouns may be puzzled by the noticeable frequency of words beginning with “*ka-*” (and, less often, “*ke-,*” depending on the following letter or syllable). This prefix is simply the Hawaiian singular definite article “the,” traditionally commonly incorporated into the names of people and places. The corresponding plural article is always “*nā-.*”

**SUGGESTED REFERENCES**


**AUDIOVISUAL AIDS**

*The house of science; Island of Aldabra; Slide bank of Hawai‘i’s native biota.*