

Aardvarks to Zoysia: A Primer on Species Resources for the Non-Scientist

The primary purpose of this article is to provide librarians with the basic information necessary to use their library resources more proficiently. This article describes resources to use for particular types of questions and provides search strategies unique to reference questions involving species names.

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Biology courses in many colleges and universities require students to write term papers about a plant or animal. When these patrons come to the library for information, many librarians have difficulty locating the necessary resources. All too often, libraries have inadequate reference materials, and/or existing information is scattered in a wide variety of sources. The primary purpose of this article is to provide librarians with the basic information necessary to use their library resources more proficiently. Library schools offer specialized reference courses covering scientific resources; however, very few provide more than a cursory explanation of various sources. This article also provides search strategies unique to reference questions involving species names.

The resources cited in this article are essential reference tools for college and university libraries. Most libraries should own *at least* three or four books dealing with plant and animal life of their particular geographic region. Whenever funds permit, purchase two copies of "local interest" identification guides. One copy should always be available in the reference collection, with a second copy available for checkout. Identification guides published by the Audubon Society and those

in the Peterson's series are excellent resources.

LINNAEUS AND THE HISTORY OF NOMENCLATURE

In 1753 Carl Linnaeus published *Species Plantarum* and, in 1758, his *Systema Naturae*. Together, these two books became the foundation for the naming of all plant and animal species. Linnaeus's system of "binomial nomenclature" (names consisting of two words—in this case, a genus and a species) became the standard method for naming all organisms. The genus is always a noun and the species an adjective, both in Latin (e.g., *Canis aureus* is Latin for "dog made of gold" and is commonly called a Golden Jackal). Over the next two centuries, as more plants and animals were identified, the process developed into a complex science.

Taxonomy and *systematics* are terms which are used interchangeably. They refer to the identification, classification, and systematic naming of animals and plants: the organizational structure used to name animals and plants. It provides a blueprint for species relationships similar to a family tree. All types of bears are

grouped in one spot, all types of birds in another, etc.

NOMENCLATURE PROCESS

Each time a "new" species is discovered, the scientist searches the literature in an attempt to identify the species. If it is truly a new species, a species description is published in whichever journal the scientist deems appropriate. Scientists who discover and describe new species, as well as systematic students, will need access to nomenclators. Other library patrons can find relevant information in many of the handbooks listed in other sections of this article.

COMMON VS. SCIENTIFIC NAMES

Patrons often ask for information on "grizzly bears" or "elm trees." They rarely know the scientific name, yet many reference books contain only scientific names in the index. In addition, the subject headings in card catalogs and online catalogs are not consistent. In spite of catalogers' best efforts, library catalogs often list some books under common names and others under scientific names.

An excellent source for translating common names into scientific names and vice versa is *Library of Congress Subject Headings*. Unabridged dictionaries tend to have common name entries that provide the scientific name and, in some cases, the family name.

TRACKING DOWN ORGANISMS

1. Determine common name(s) and scientific name(s) for the organism. Some indexes use only scientific names, while others use only common names. Identifying both types of names and possible spelling variations at the beginning of a search will make the process much easier.
2. Many basic questions can be answered using the encyclopedias, identification guides, etc., listed at the end of this article. These sources contain short summaries of individual species.
3. In-depth species descriptions can be found in books. Try using the library catalog to locate entire books on the species.

4. If the species which you are researching is not listed in any of the above sources, it may be a recent discovery. In such cases, you may need to use *Zoological Record* or *Biological Abstracts* to locate journal articles with descriptions of more recent species. Please consider the audience level when deciding whether or not to resort to these tools. The journal articles discuss research studies on particular species, are *not* written for the layperson, and *may not* be comprehensible to undergraduate students.
5. If information on a particular species is unavailable, broaden out the search to a higher taxonomic category such as family, class, or order.

LOCATING BOOKS ON A PARTICULAR SPECIES

Subject entries in library catalogs will vary depending on local cataloging customs. *Library of Congress Subject Headings* uses common names *most* of the time, but not always! For example, *Canis aureus* is a useable heading, but *Canis mesomelas* has a cross reference indicating that the heading that should be used is Black-backed Jackal. As mentioned before, search under both scientific and common names to be thorough.

If a species search is unsuccessful, broaden the search. *See also* references often provide excellent alternatives. In addition, try looking for books that discuss a broad range of animals or plants (e.g., *The Natural History of Deer*, *The Families of Flowering Plants*) or books that discuss organisms in different geographic areas (e.g., *Amphibians and Reptiles of Kansas*, *Ferns and Fern Allies of Kentucky*). These will often discuss individual species at great length.

LOCATING JOURNAL ARTICLES

Many of the techniques used in searching library catalogs can be applied to CD-ROM and online database searches. The main rule is: for comprehensive searches, search under common name(s) and scientific name(s). Database searchers also need to be aware of the tendency of scientists to abbreviate genus names. Searching

"*Drosophila melanogaster*" will not pick up occurrences of "*D. melanogaster*." Databases handle this problem in a variety of ways.

If a species search is unsuccessful, broaden the search to just the genus. For example, search for *Crotalus* instead of *Crotalus viridis*. An article may discuss six species of *Crotalus* without listing the individual species in the abstract. When looking for articles in the print version of *Biological Abstracts* and/or *Zoological Record*, be sure to use the generic/genus index.

THOSE PESKY INSECTS

Insects are, by far, the most diverse and abundant class in the animal kingdom. Recent surveys in tropical forests suggest that there may be as many as twenty-five to thirty million species of arthropods in the world, most of which are undescribed, and most of them insects.¹ This compares to 4,008 mammal species, 8,900 bird species, 5,175 reptile species, 2,400 amphibian species, and 30,000 fish species. In addition, there are about 8,000 new insect species discovered each year.²

As a result of this abundance of new species, it can often be very difficult to find information on a particular insect. This immense number of species has also prevented anyone from publishing a "comprehensive" guide to insects. Many libraries can get by with a guide to insects of North America, or a basic encyclopedia of insects. Anyone researching a recently discovered insect species will need to use *Zoological Record*.

SLIPPERY FISH

Fish identification and research is a relatively new field compared to the other plant/animal categories. Many animals were described as early as the 16th century, while fish discoveries were delayed by man's inability to explore the marine terrain. To locate in-depth information, fish can be divided into several useful categories such as fresh-water, marine, tropical, and fossil. Also, many books cover fish in one specific geographic area. Use the library catalog to locate books on the specific fish category or geographic region (e.g.,

"Fishes—Freshwater" or "Marine Fishes—Australia"). (To accommodate scuba divers, fish books are often published with plastic-coated pages. The plastic can prevent water damage and, sometimes, inhibit photocopying.)

WHERE TO GO FROM HERE

Reading is *not* believing and practice makes perfect, so, using the information from this article, practice locating resources! Here are a few ideas to get you started: grizzly bear, water moccasin, sugar maple, *Diceros bicornis*, *Gavia immer*, and *Serrasalmus spilopleura*.

CORE REFERENCE SOURCES

Basic Tools

Grzimek, Bernhard. *Grzimek's Animal Life Encyclopedia*. 13 vols. New York: Van Nostrand Reinhold, 1972-1975. \$29.95 per volume. LC 79-183178.

The classic animal encyclopedia, useful for illustrations, common names, and geographic range. Grzimek provides general information on distinguishing features and behavior of broad groups of species and major individual species. The set is arranged by animal group. Volume 1 covers lower animals; volume 2, insects; volume 3, mollusks and echinoderms; volumes 4-5, fish and amphibians; volume 6, reptiles; volumes 7-9, birds; and volumes 10-13, mammals. Each volume has a separate index, and most volumes have a bibliography preceding the index.

Longman Illustrated Animal Encyclopedia. Ed. by Philip Whitfield. Harlow, Essex, England: Longman, 1984. 600p. £25 (ISBN 0-582-55691-0). LC 84-125960.

This encyclopedia is an excellent source for basic information on vertebrates (excludes insects and other invertebrates). Each entry contains 1-3 paragraphs of information on individual species, along with an illustration. The index provides access by both common and scientific name. Written for the layperson. Useful for locating, in one volume, very general information on a wide variety of animals.

Rothschild, Nathaniel Mayer Victor, Baron. *A Classification of Living Animals*. 2d ed. London: Longman, 1965. 134 p. LC 72-192998.

This book provides animal kingdom classifications in outline form. It is useful for locating, at a glance, the class, order, etc., of an animal genus. If the search for a particular animal species is unsuccessful using other resources, this book will assist in locating terms to broaden out the search to entire classes, orders, etc. Use the index in the back of the book to locate the page for a particular genus.

Synopsis and Classification of Living Organisms. Ed. by Sybil P. Parker. 2 vols. New York: McGraw-Hill, 1982. \$149.50 (ISBN 0-07-079031-0). LC 81-13653.

This set covers viruses, bacteria, plants, and animals. It does not cover all species—it only mentions the major species of major genera. Entries include general information on genera, families, classes,

etc., that is applicable to all individual species within the listed category. This is also a great place to start when working with an "unknown" genus and species. Volume 2 contains an excellent genus/common name index. Once you determine what type of organism you are dealing with, in-depth information can be located using specialized sources listed in one of the sections below.

Amphibians and Reptiles

Amphibian Species of the World: A Taxonomic and Geographical Reference. Ed. by Darrel R. Frost. Lawrence, Kans.: Allen Press and the Association of Systematics Collections, 1985. 732p. \$85 (ISBN 0-942924-11-8). LC 85-9220.


Written for amphibian systematists, this is an annotated checklist of 4,014 amphibian species, nearly one-third of which were described in the last twenty-five years. Each species entry provides the name of the original discoverer, the first description of the species, geographical distribution, type locality (if available in a collection), and protected status (if endangered). A very small amount of information is provided for each of the species. Primarily useful for locating the original scientific species description and higher taxonomic categories to use in other resources.

Crocodylian, Tuatara, and Turtle Species of the World: A Taxonomic and Geographic Reference. Ed. by F. Wayne King and Russell L. Burke. Washington: Association of Systematics Collections, 1989. 216 p. paper, \$29.00 (ISBN 0-942924-15-0). LC 89-18155.

Similar to the Frost book listed above this is an annotated checklist of 271 crocodylian, tuatara, and turtle species. Unlike the Frost book, this attempts to provide common names, whenever possible.

Ditmars, Raymond Lee. *Reptiles of the World: The Crocodylians, Lizards, Snakes, Turtles and Tortoises of the Eastern and Western Hemispheres*. New York: Macmillan, 1933. 321p. LC 33-32380.

Although newer books have been published in this field, none covers the wide variety of reptiles found in this classic. It is an excellent source for general informa-



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tion on families or broad groups of similar reptiles that is applicable to all individual species within the listed category. Ditmars also provides specific information on some of the better-known species. For more in-depth information on North American species, consult Ditmars' *Reptiles of North America* (1936).

Mehrtens, John M. *Living Snakes of the World in Color*. New York: Sterling Publishing, 1987. 480p. \$60 (ISBN 0-8069-6460-X). LC 87-9932.

The overwhelming strength of this book lies in its value as an identification guide. Mehrtens provides phenomenal color photographs of approximately three thousand living snake species. In addition, information on habitat, geographic range, natural history, and care is included. The back of the book contains a glossary of terms, a common name index, and a scientific name index.

Smith, Hobart Muir. *Handbook of Lizards: Lizards of the United States and of Canada*. Ithaca, N.Y.: Comstock Publishing, 1946. 557p. LC 46-3539.

Although somewhat dated, this book provides in-depth information on individual lizards. Species accounts include: lizard range, size, color, scalation, recognition characters, habitat, habits, and species problems. Entries also provide references for further reading. To locate newer information on a particular lizard, try looking for journal articles written by the species discoverer. Black-and-white illustrations. Index lists only scientific names.

Williams, Kenneth L., and V. Wallach. *Snakes of the World*. 2 vols. Malabar, Fla.: Krieger Pub. Co., 1989-. LC 88-1. v.1: 244p. \$31.50 (ISBN 0-89464-215-4); v.2: \$33.50 (ISBN 0-89464-216-2).

Written for snake systematists, volume 1 covers snake generic names. It lists all known genus and subgenus names for snakes, provides a citation for the original genus description, and mentions erroneous spellings. Primarily useful for locating the original species description and higher taxonomic categories to use in other resources. Volume 2, due to be published in 1995, will be a synopsis of living and extinct snake species (their types, type localities, and distribution).

Birds

Illustrated Encyclopedia of Birds: The Definitive Reference to Birds of the World. Consultant-in-Chief, Christopher M. Perrins. New York: Prentice Hall Editions, 1990. 420p. paper, \$50 (ISBN 0-13-083635-4). LC 90-34400.

This is the book to use for illustrations of a particular bird. It is similar to the Terres book listed below, but covers 9,300 bird species worldwide. Excellent source for birders to identify unknown species by browsing through the colored drawings or looking up species in the scientific or common name indexes. Also includes one to three brief paragraphs of information for each species (providing range, habitat, and body size). No bibliography.

Sibley, Charles G., and Burt L. Monroe, Jr. *Distribution and Taxonomy of Birds of the World*. New Haven, Conn.: Yale Univ. Pr., 1990. 1,111p. \$125 (ISBN 0-300-04969-2). LC 90-70494.

Written for ornithologists, species accounts include: author of scientific name, year of original description, English name(s), world list number, habitat description, alternate name(s), and range boundaries. A very small amount of information is provided for each of the 9,672 species. Primarily useful for locating the original species description and alternate names to use in other resources. Index includes common and scientific names. No illustrations.

Terres, John K. *The Audubon Society Encyclopedia of North American Birds*. New York: Wings Books, 1991. 1,109p. \$39.99 (ISBN 0-517-03288-0). LC 91-21877. (Reprint of 1982 edition.)

As the title suggests, this book covers only North American birds. All birds of a family are grouped together, with excellent cross references from common names and synonyms to the family entry. Terres provides highly detailed, yet very readable, species accounts including: feeding habits, nests, eggs, incubation, hybrids, lifespan (if known), alternate names, weight, and range. Color photographs are provided for common species.

Fishes

Eschmeyer, William N. *Catalog of the Genera of Recent Fishes*. San Francisco: California

Academy of Sciences, 1990. 697p. \$55 (ISBN 0-940228-23-8). LC 90-82789.

Primarily written for fish systematists, this provides a guide to literature discussing all living *genera* and *subgenera*. If the search for a particular fish species is unsuccessful using other resources, this book will assist in locating terms to broaden out the search to entire genera or subgenera and provide bibliographic citations for further reading. Other information that Eschmeyer provides includes genus, author, date named, type species, spelling variations, and family/subfamily.

Nelson, Joseph S. *Fishes of the World*. 3d ed. New York: Wiley, 1994. 600p. \$72.95 (ISBN 0-471-54713-1). LC 93-37462.

Information is provided to assist in the identification of various fish families. This is an excellent source for general information that is applicable to all species within a particular family. Interesting life history or biological notes, geographic range, and maximum length of the largest species are often given. Outline drawings are provided for most of the families. Nelson also provides an extensive list of references for further reading.

Page, Lawrence, M., and Brooks M. Burr. *A Field Guide to Freshwater Fishes of North America North of Mexico*. The Peterson Field Guide Series; 42. Boston: Houghton Mifflin, 1991. 432p. \$24.95 (ISBN 0-395-35307-6). LC 90-42049.

Like all Peterson field guides, the main purpose of this book is to assist in the identification of individual species. Brief information is provided on range, habitat, and "similar species." Color illustrations have arrows pointing to unique, identifying characteristics. The index lists both common and scientific names. Peterson also publishes guides to Pacific Coast fishes and Atlantic Coast fishes.

Wheeler, Alwyne C. *World Encyclopedia of Fishes*. London: Macdonald, 1985. 368p (ISBN 0-35-610715-9). LC 85-175105.

There is a plethora of fish books, each aimed at a specific geographic area; however, there are very few general encyclopedias available that cover fish species worldwide. While this book is not available for purchase (except through out-of-print book dealers), the worldwide coverage is unique. Wheeler,

principal scientific officer at the British Museum (Natural History), describes nearly 1,500 species. Data include size, distribution, and color. Written for the layperson.

Insects

Arnett, Ross H. *American Insects: A Handbook of the Insects of America North of Mexico*. Gainesville, Fla.: Sandhill Crane Pr., 1993. 850p. \$59.50 (ISBN 1-877743-19-4). LC 92-41053.

Arnett provides detailed descriptions of 7,719 "common" North American insect species. Arranged by order, this book provides general information pertaining to all species in the order and then describes family and genus characteristics necessary to differentiate and identify individual species. Black-and-white photographs and outline drawings assist in identification, but patrons need to have a rough idea of the insect type before using this book. A wonderful bibliography of additional readings is provided at the end of each order. Mainly for use in determining if the bug in hand is, for example, a Rough Stink Bug or Say's Stink Bug.

Common Names of Insects & Related Organisms, 1989. Manya B. Stoetzel, chairman, Committee on Common Names of Insects. Lanham, Md.: Entomological Society of America, 1989. 199p. \$35 (ISBN 0-938522-34-5). LC 90-214412.

The primary purpose of this book is to cross-reference common names, scientific names, and higher taxonomic categories for insects. If the search for a particular insect species is unsuccessful using other resources, this book will assist in locating terms to broaden out the search to a higher taxonomic category. After determining the taxonomic category, try looking in the library catalog for an entire book on the category.

Encyclopaedia of Insects. Ed. by Christopher O'Toole. London: Allen & Unwin, 1986. 141p. £15 (ISBN 0-04-500038-7). LC 85-29226.

This is an excellent source of information on the natural habitat, life cycles, and behavior of insect families. Additional in-

formation is given for some of the more common insect species. O'Toole provides general information that is applicable to all species within a particular family. Stunning illustrations. The U.S. edition is published by Facts On File.

Invertebrates

Pearse, Vicki, and others. *Living Invertebrates*. 2d printing, with revisions. Pacific Grove, Calif.: Boxwood Pr., 1987. 848p. \$54.95 (ISBN 0-86542-312-1). LC 86-10790.

Many of the invertebrate books that are currently available are intended as textbooks and are not really adaptable to reference work. This book is an exception. It is eminently readable, yet comprehensive and highly illustrated. A bibliography of further readings is provided for each chapter. The index provides access by both scientific and common names. "For each taxon we give a proper name, common name if any, brief nontechnical characterization, notes on habits and habitats, and examples of common or representative genera" (p.vii).

Pratt, Henry Sherring. *A Manual of the Common Invertebrate Animals, Exclusive of Insects*, rev. ed. Philadelphia: P. Blakiston's Son & Co., 1935. 854p.

Aimed at systematists, this book provides sufficient information on each species to allow for identification of specimens. For each order, Pratt provides a bibliographic citation for further reading; and for each species, the name of the author who originally described it. This is an excellent source for general information that is applicable to all species within a particular order. Drawings are provided for many entries.

Mammals

Grzimek's *Encyclopedia of Mammals*. Ed. by Bernhard Grzimek. 2d ed. 5 vols. New York: McGraw-Hill, 1989. \$500 (ISBN 0-07-909508-9). LC 89-12542.

Written similarly to *Grzimek's Animal Life Encyclopedia*, this is not a subset. Information provided in the mammal set is much more detailed, covers more species, and is more up-to-date than the animal life set. Grzimek writes at a level that is easily understandable to the general public. Entries provide common and scientific names, size, distinguishing features, reproduction, life cycle, diet, enemies, habi-

tat, and behaviors. Each volume is indexed separately and contains a small list of references in the back.

Mammal Species of the World: A Taxonomic and Geographical Reference. 2d ed. Ed. by Don E. Wilson and Dee Ann M. Reeder. Washington D.C.: Smithsonian Institution Pr., 1993. 1,206p. \$75 (ISBN 1-56098-217-9). LC 92-22703.

Similar to Frost's amphibian book listed above, this is an annotated checklist of 4,629 mammal species. Written for mammal systematists. Is primarily useful for locating the original species description and alternate names to use in other resources.

Nowak, Ronald M. *Walker's Mammals of the World*. 5th ed., 2 vols. Baltimore: Johns Hopkins Univ. Pr., 1991. 1,629p. \$89.95 (ISBN 0-8018-3970-X). LC 91-27011.

This is the classic reference in mammalogy, useful to both scientists and the general public. It provides a black-and-white photograph of a "living representative" for most genera. For each genus, *Walker's* provides author and date of original description, common name(s), number and names of species, geographic range, body size, habitat, diet, and reproduction. Most entries are fairly lengthy and provide extensive bibliographic citations for additional reading.

Plants

Bailey, L. H. *Hortus Third: A Concise Dictionary of Plants Cultivated in the United States and Canada*. New York: Macmillan, 1976. 1,290p. \$150 (ISBN 0-02-505470-8). LC 77-352066.

This is an inventory of 20,397 plants cultivated in North America (e.g., crops, flowers, nursery plants, etc.). Entries list description, scientific name, synonyms, common names, notes on use, methods of propagation, culture, and hardiness zones. These entries are very brief and slightly cryptic. For additional information, consult the de Wit book below or check the library catalog for a book on the specific "type" of plant. An extensive index to common names is provided.

Mabberley, D. J. *The Plant Book: A Portable Dictionary of the Higher Plants*. New York: Cambridge Univ. Pr., 1987. 706p. pa-

per, \$44.95 (ISBN 0-521-34060-8). LC 87-15077.

This dictionary provides entries under genus and family names, with excellent cross references under common names. It covers only the "higher" plants (excluding ferns, algae, bacteria, moss, fungi, etc.). Genus entries include the family name, original discoverer, geographic area, and economic and/or medical uses. If the search for a particular plant species is unsuccessful using other resources, this book will assist in locating terms to broaden out the search to an entire plant family.

Wit, H. C. D. de. *Plants of the World*. 3 vols. New York: Dutton, 1966-1969. LC 66-25815.

Although somewhat dated, these slim volumes provide easy-to-read (yet in-depth) information on plants worldwide. Each entry lists botanical description, distribution and habitat, cultivated types, uses, and history of the common name. This set is much more informative than *Hortus Third*, and covers all types of plants, but contains fewer plant species. No bibliography.

Nomenclators

Index Nominum Genericorum (Plantarum). 3 vols. (Published as volumes 100-102 and 113 of the Regnum Vegetabile series.) Utrecht, Netherlands: Bohn, Scheltema & Holkema for the International Bureau for Plant Taxonomy and Nomenclature, 1979. 1,896p. f1575.00 (ISBN 90-313-0327-2). LC 80-487065.

Alphabetical listing of all known plant genera, worldwide. Although the title is in Latin, the text (with the exception of genus and species names) is written in English. This is an excellent source for verifying spelling and/or the existence of a plant species. *Plantarum* covers many species that are not usually found in basic encyclopedias or handbooks. Each entry contains: author/citation of first published information on the genera, synonyms, and at least two levels of taxonomic rank. Some entries also list one or two species within the genera. A supplement was published 1986 in an attempt to keep the index as current as possible. Written for plant systematists.

Index Zoologicus. 2 vols. London: Zoological Society of London, 1902-1912.

These volumes are basically supplements to *Nomenclator Zoologicus*, listed below. They document genera nomenclature published from 1880 to 1910 that were not included in previous nomenclators.

Linne, Carl von. *A General System of Nature, Through the Three Grand Kingdoms of Animals, Vegetables, and Minerals*. Translated from the 13th ed. 7 vols. London: Lackinton, Allen & Co., 1806.

Originally published in Latin, this work is considered the classic starting point in plant and animal nomenclature. It includes all known plant and animal species as of 1758. All species are described, and entries include information on "habitat, manners, economy, structure and peculiarities." Volumes 1-4 cover animals; volumes 5-6, plants; and volume 7, minerals. The Latin edition is entitled *Systema Naturae*. Many similar editions and reprints are available from a wide variety of publishers in a variety of languages.

Nomenclator Zoologicus. Ed. by Sheffield Airey Neave. 7 vols. London: Zoological Society of London, 1939-1970.

Alphabetical listing of animal genera. This set covers all genera discovered from the publication of Linnaeus's *Systema Naturae* in 1758, to the end of 1965. For each genus or subgenus, this set lists: original author/citation and class in the animal kingdom. It also lists some of the species for each genus. It is written in English. If a particular species is not listed in Sherborn's book, listed below, Neave's book can be used to broaden out the search to information on a particular genus.

Sherborn, C. D. *Index Animalium*. 2 vols. in 11. London: British Museum, 1902-33.

Alphabetical listing of animal species. This set covers all species discovered from the publication of Linnaeus's *Systema Naturae* in 1758, to the end of 1850. This is an excellent source for verifying spelling or the existence of an animal species. Sherborn covers many species that are not usually found in basic encyclopedias or handbooks. For each species, this set lists: genus, original author/citation. Section 1 covers 1758-1800; section 2, 1801-1850. It is written in English. ■■

 REFERENCES

1. Christopher O'Toole, *Encyclopaedia of Insects* (London: Allen & Unwin, 1986), preface.
2. Gerald L. Wood, *The Guinness Book of Animal Facts and Feats*, 3d ed. (Middlesex, England: Guinness Superlatives Ltd., 1982), 170.

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