

Biodiversity Heritage Library:

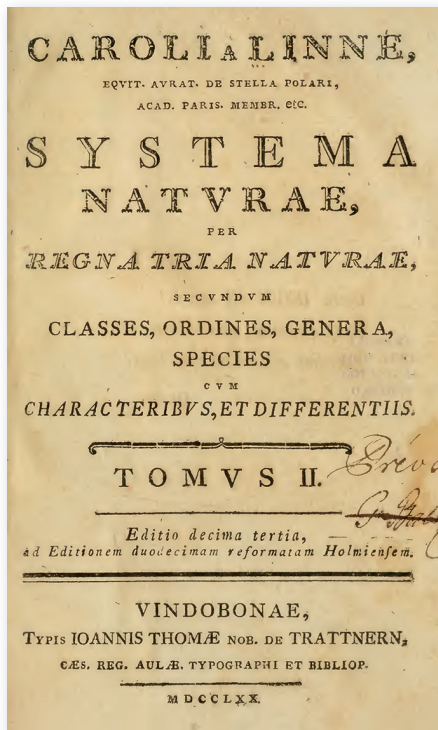
Inspiring Discovery Through Free Access to Biodiversity Knowledge.

Leora Siegel

The Lenhardt Library, of which I am the Senior Director, is one of the treasures of the Chicago Botanic Garden. Open to the public, its 150,000-volume collection encompasses resources on gardening, botany, plant conservation, and landscape design, in formats from rare books to e-books. The library's initiatives focus on public engagement, col-

on Earth, population extinctions, or climate change, it is a mobile library on their phones when conducting fieldwork, and obviates the need to travel to libraries holding the materials. Artists are inspired by the natural history illustrations offered by the rare books. To librarians, the BHL is a tool for primary source research with numerous access points including full-text searching and transcriptions of 19th century field notes. The BHL's new associ-

engaged audience. Thousands of images from BHL books can be explored in Flickr. A recent social media campaign focused on women in natural history reached over 7 million people, garnering over 50 million impressions (the number of times content is displayed). So far, scientists have named two new species in honor of BHL, the most recent *Kishenehoasilus bhl* Dikow, a fly fossil species, was announced in August 2019. For Dr. Alejandro Bortolus, a



Linné, Carl von. *Systema Natvrae*... Vienna, Typis Ioannis Thomæ Nob. De Trattnern, 1770



Lear, Edward. Illustrations of the family of Psittacidae, or parrots... London, E. Lear, 1832



Bleeker, P. *Atlas ichthyologique des Indes Orientales Néerlandaises*... Amsterdam, 1862

lections, and collaborations. The Lenhardt Library is an active contributor to, and user of, the Biodiversity Heritage Library (BHL)

The BHL (<https://www.biodiversitylibrary.org/>) is a virtual (online) library of digitized materials with free and open access across the globe. Its subject – biodiversity – has a broad scope that includes plants, fungi, insects, mammals, birds, fossils, and more, under the umbrella of natural history. The BHL's more than 61 million pages of primary source literature date from the 15th through the 21st centuries and constitute the largest digital repository of biodiversity in the world.

BHL is highly valued by its diverse community of users. To scientists studying life

with Unpaywall (a free, open-source non-profit project dedicated to making scholarly research more open and accessible) makes the content even more freely available. BHL's many tools for downloading content, taxonomic scientific name accuracy, reference management of citations, DOIs and Stable URLs, and data exporting, all help to make it a rich resource for its many users. For small research libraries such as the Lenhardt Library, digitizing our collections and making our resources available to an ever-widening community of users is vital.

BHL engages its user libraries and individual users through sophisticated social media channels. Posts on Facebook, Twitter, Instagram, and on a BHL blog share its contents with an

Coastal Ecologist "BHL is a dream come true ... all of the material is available for anyone to check ... from any personal computer in what I consider a portable magic library."

Operationally, BHL is a consortium of 80 committed worldwide partners on six continents; including natural history, botanical, research, and national libraries. It was founded in 2006 by 10 members in the U.S. and U.K. and has since grown tremendously in the last dozen years. The Smithsonian Libraries and Archives provide leadership of the project and supply it with permanent staff. Tamar Evangelista-Dougherty is the current Director of the Smithsonian Libraries and Archives and a Caxton member. Illinois features prominently

in BHL with three participating institutions – the Field Museum, the University of Illinois at Urbana-Champaign, and the Chicago Botanic Garden.

Most of the work is managed online across numerous time zones, with an annual meeting for partners to gather, conduct business, and network in person. A vast internal website covers all aspects of the organization. BHL is funded primarily by dues and by grants to partners. Some libraries have dedicated staff who digitize images, assign indexing data, and upload to the website. Others send materials off-site to be scanned, then complete the rest of the work in the home library.

A network of partner committees manages the content. A decision to ban “Frankenbooks” (imperfect copies digitally sewn together to make a more complete copy) was recommended by the Collections Committee to the organization at large and accepted. Therefore, all volumes in the BHL are true representations of authentic physical copies. A print retention taskforce assembled recommended best practices for retaining print copies of digitized content in the large digital repository.

Natural history books were written in the collaborative spirit of science to share scientific knowledge and species discoveries, and thus to spark new theories and ideas. Researchers explored the world for scientific societies and reported back with their new content in lectures and papers. For BHL’s European colleagues, what is now a 200-year-old “rare” book may have been received by the institutional library when it was newly published. Scientific illustrators and engravers, long before the age of photography, captured the essence of newly discovered species and brought them to life, often in full color. Scientific processes require referring to first mention of a theory, tracing it through the ages, and adding one’s own new hypotheses.

For Further Information

Biodiversity Heritage Library:
www.biodiversitylibrary.org

Caxton Club:
www.caxtonclub.org

Lenhardt Library of the Chicago Botanic Garden:
www.chicagobotanic.org/library

The volumes in the Biodiversity Heritage Library are primary sources for the natural world that is known today. Knowledge may have been lost through the centuries. With BHL’s full-text searching and taxonomic name finders, species can be rediscovered in the literature. Some developing countries that were “discovered” by Western Europeans in past centuries do not have the kind of libraries found in developed countries. BHL provides access to scientists across the globe (including those in developing countries) to study their regional flora and fauna. Artistically, the hand-colored and copper engravings found in natural history books are museum-quality pieces.

Prized natural history illustrations are often removed from their accompanying texts and mounted on walls in private homes. Digitized copies keep the knowledge contained in those illustrations intact for future generations. BHL’s collections include 4,715 volumes published between 1450 and 1799, each of which is viewable in full text, page by page. The oldest book, by Pliny, was published in 1469.

Would our namesake William Caxton approve of this new format – a digital library?

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Pliny. Plinius Secundus Nouocomensis equestribus militiis industrie functus... Venice, Johannes de Spira, 1469

I say “Yes!” In the same way that he and other early printers revolutionized human communication, the Biodiversity Heritage Library is transforming access to the primary source literature of the Earth’s ecosystems and species.

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