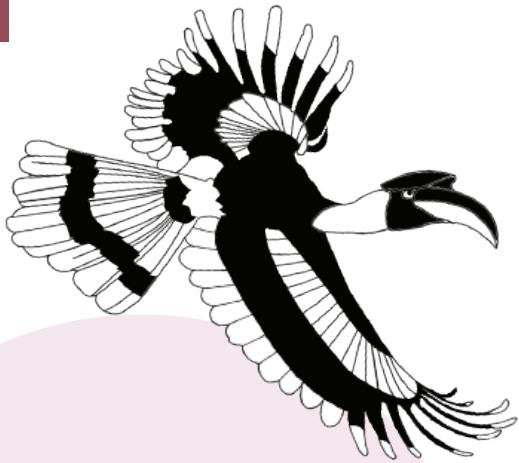July - September 2012

Biodiversity Heritage Library

Quarterly Report

BHL
Biodiversity Heritage Library
www.biodiversitylibrary.org

Looking Back...
Summer 2012

While last quarter saw BHL staff traveling extensively overseas in order to strengthen global BHL initiatives, this quarter provided an opportunity for staff to connect with domestic (and UK!) partners.

On September 27-28, 2012, thirty-one staff members representing all 14 BHL member institutions convened at the Ernst Mayr Library at the Museum of Comparative Zoology at Harvard University for the 2012 BHL Staff and Technical Meeting. As a combined meeting, it brought together not only those that manage the digitization workflow at each member institution, but also those that work to keep BHL's technical infrastructure running smoothly and constantly improving. Funded by remaining funds from the Lounsbery Foundation grant originally received to support the BHL Life and Literature Conference in November, 2011, the meeting was the first face-to-face meeting for US/UK staff in nearly a year.

To maximize the 16 hours available for discussions, the meeting was divided into separate Staff and Technical tracks, with only those sessions relevant to all staff combined. Combined sessions included Program and Technical updates, as well as a discussion of BHL Projects and Initiatives, which allowed staff to identify high-impact projects to incorporate into a 2-year workplan for BHL. Staff sessions included a Program Management Update; brainstorming requirements for a BHL-Awareness Program; a Collections Analysis, Scope, and Prioritization discussion; a Blog brainstorming session; and discussions about BHL's mission statement and goals. The Technical sessions discussed providing article-level access in BHL; replicating and synchronizing BHL content globally; the NEH Art of Life project status; BHL's boutique digitization workflow management tool Macaw; Full-text searching; and OCR improvements.

Staff are now busy developing plans to address meeting action items and continue discussions about revising BHL's mission and goals in order to further inform a 2 year workplan for the project. The 2012 Staff and Technical Meeting was a hands-down success and a fabulous opportunity for BHL's dedicated staff to further our vision to repatriate biodiversity knowledge to the world.

...highlights

BHL's New Technical Director

On August 23, 2012, the BHL Steering Committee unanimously voted to appoint William Ulate as the new BHL Technical Director, replacing Chris Freeland, BHL's founding technical director, who has accepted a new position as Senior Director of University Academic Computing at Washington University in St. Louis, MO. Ulate currently serves as BHL's Global Coordinator, a capacity he will maintain alongside his new duties as Technical Director.

BHL at ESA

On August 5-10, 2012, Constance Rinaldo of the Ernst Mayr Library at the Museum of Comparative Zoology at Harvard University represented BHL at the joint BHL/EOL booth at the Ecological Society of America 2012 conference in Portland, Oregon. This year, the theme of the conference was Life on Earth: Preserving, Utilizing, and Sustaining our Ecosystems - a fitting backdrop against which to feature BHL.

Shark Week & American Trails

To celebrate the pop-culture phenomenon "Shark Week," and to highlight the opening of the American Trails exhibit at the National Zoo, BHL ran two successful PR campaigns in August and September. Consult the social media section of this report for more information about the Shark Week event.

Flickr Tagging Party

On July 18, 2012, BHL staff at the Smithsonian Libraries, in collaboration with staff at the Encyclopedia of Life, hosted the second BHL Flickr Tagging Party, designed to teach Smithsonian employees how to add species name machine tags to images in the BHL Flickr. Learn more about the BHL Flickr tagging events on pages 13-14.

BHL at Wikimania

On July 9-14, 2012, Smithsonian Libraries' BHL staff members Gilbert Borrego, Grace Costantino and JJ Ford attended the 8th Annual Wikimania Conference in Washington, D.C. Interested in exploring collaborative opportunities between BHL and Wikipedia, SIL's staff were particularly interested in the possibilities offered by WikiSource with regards to crowd-sourced OCR corrections and user-contributed text augmentations and Wikimedia Commons, which, as Wikipedia's media file repository, represents an obvious platform on which to share BHL's images.

BHL Pagination Activities

Beginning in September, BHL is keeping track of the number of pages staff manually paginate, or assign page metadata to. In Sept., 2012, staff at Smithsonian, Field & Harvard MCZ manually paginated 19,651 pages.
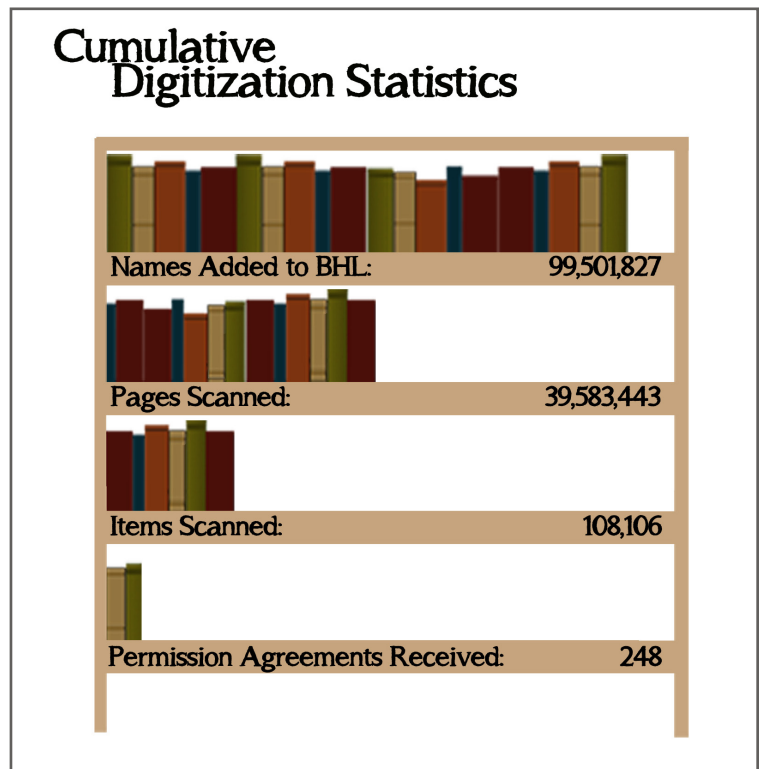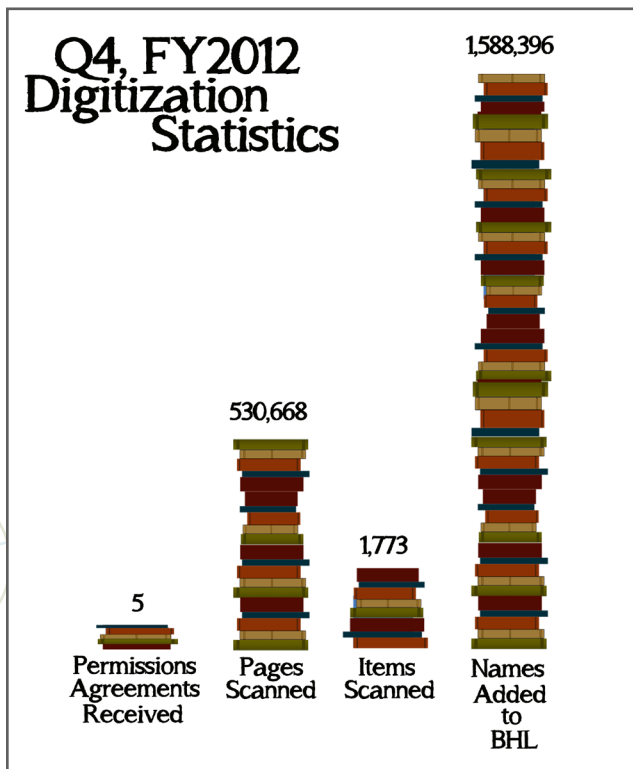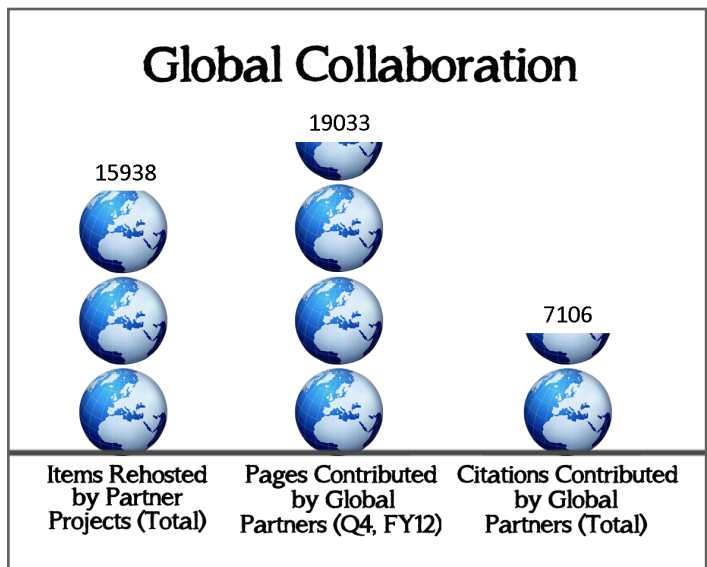
COLLECTION profile

Content for BHL is collected via a variety of methods. Primarily, BHL partner institutions scan items within their collection to build the BHL corpus. BHL also harvests materials from other digitization projects that match BHL collection criteria. Statistics presented below represent those of the BHL US/UK portal.

Q4, FY2012 Digitization Statistics

Category	Value
Permissions Agreements Received	5
Pages Scanned	530,668
Items Scanned	1,773
Names Added to BHL	1,588,396

Cumulative Digitization Statistics

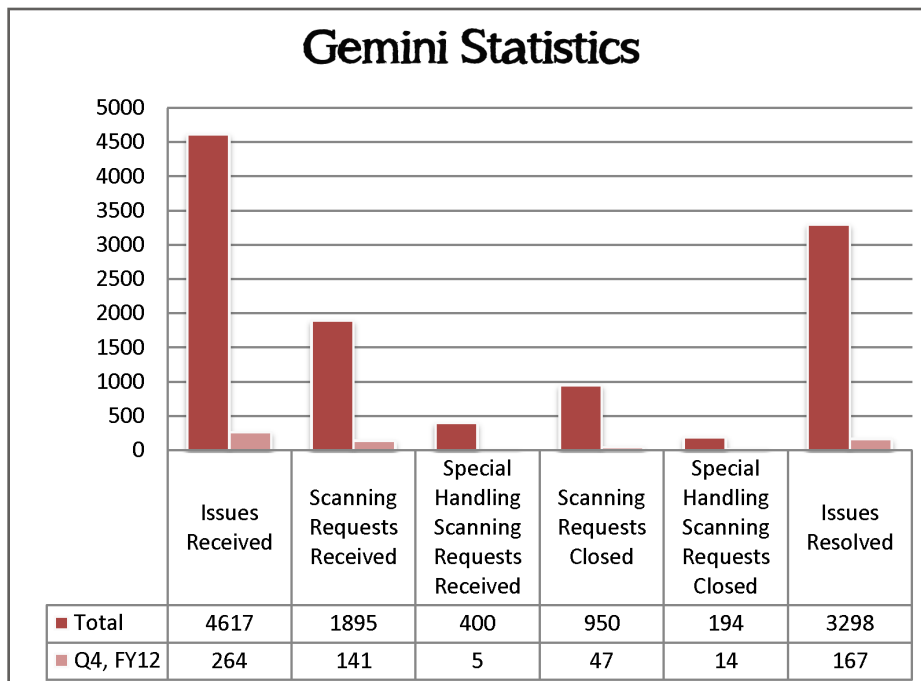| Category	Value
Names Added to BHL:	99,501,827
Pages Scanned:	39,583,443
Items Scanned:	108,106
Permission Agreements Received:	248

Collaboration Statistics

BHL's global partners currently include Europe, China, Australia, Egypt, and Brazil, with plans to announce a BHL-Africa in Spring, 2013.

As a global initiative, efforts are made to replicate scanned content among the variety of BHL nodes throughout the world. The goal is to ensure that content scanned for one global partner is available via all BHL portals. In the graph to the right, "pages" and "citations contributed" refers to content contributed by our global partners to BHL-US/UK. "Items rehosted" refers to BHL-US/UK content replicated in BHL global partner nodes.

Global Collaboration

	Items Rehosted by Partner Projects (Total)	Pages Contributed by Global Partners (Q4, FY12)	Citations Contributed by Global Partners (Total)
	15938	19033	7106

Gemini Statistics

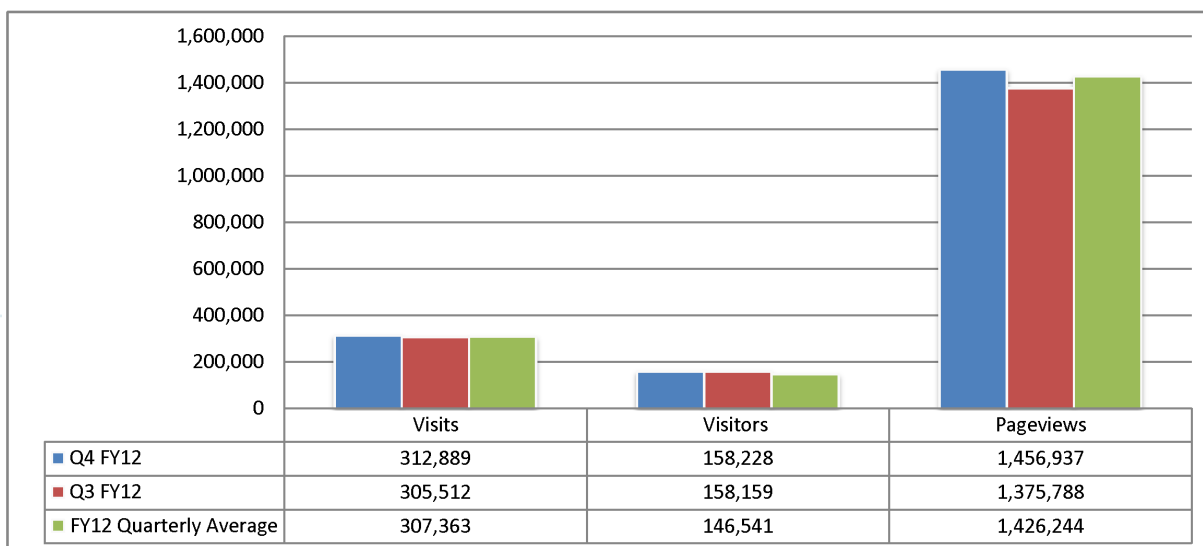|	Issues Received	Scanning Requests Received	Special Handling Scanning Requests Received	Scanning Requests Closed	Special Handling Scanning Requests Closed	Issues Resolved
Total	4617	1895	400	950	194	3298
Q4, FY12	264	141	5	47	14	167

BHL collects user feedback and collaborates to resolve this feedback using an issue tracking system called Gemini. User feedback includes notification of errors with scanned content, suggestions for service improvements, and requests for content to be scanned. Many scanning requests are considered "Special Handling" as they constitute requests for rare, oversized, or fragile material. Gemini is particularly helpful when coordinating the scanning of material for BHL among global partners.
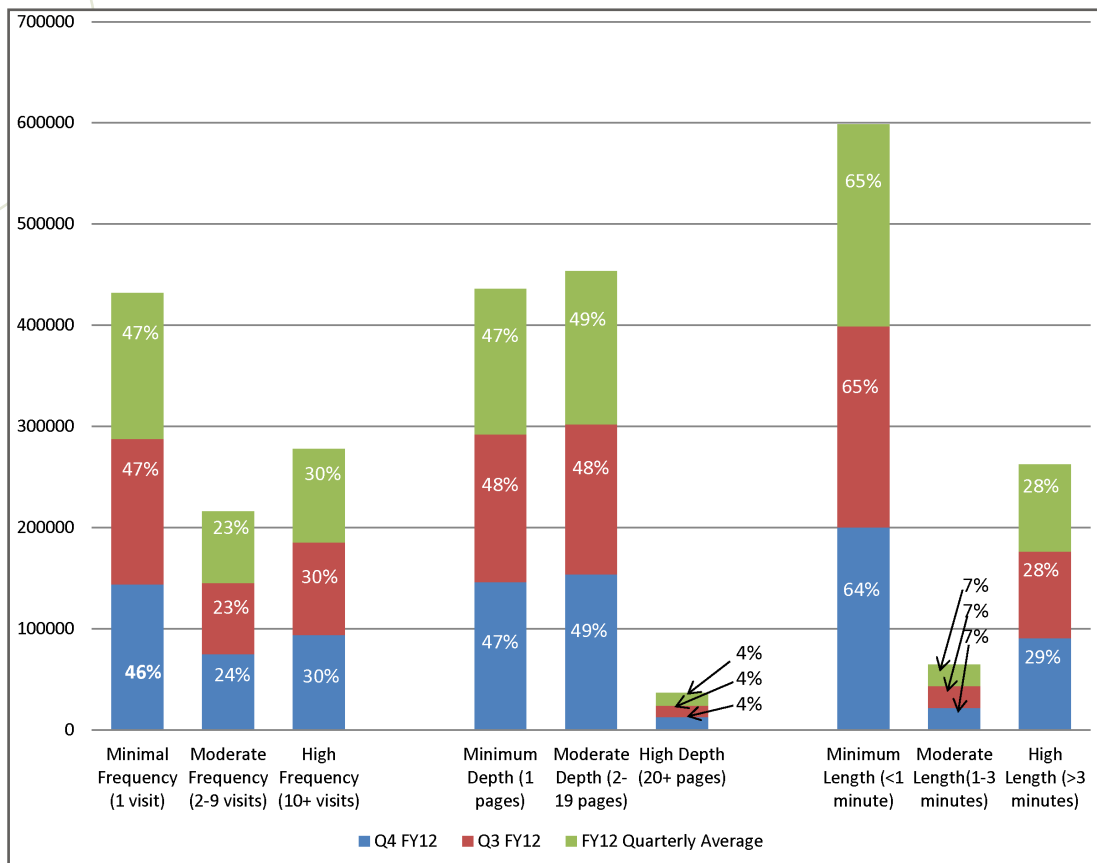
WEBSITE statistics

For Quarter 4, Fiscal Year 2012, BHL experienced a 2.4% increase in website visits as compared with our previous quarter and a 6% increase in website pageviews as compared with last quarter. Our unique visitors this quarter as compared with last, however, were nearly identical. The graph below visually displays this quarterly comparison, as well as a comparison with the average quarterly numbers for FY12.

This quarter, we also began keeping statistics on some new, significant metrics regarding BHL website use and user engagement: Frequency, Depth, and Length (see graph, page 6). Frequency refers to how often the same visitor returns to our website, demonstrating customer loyalty. For this quarter, 46% of our visits were from users who visited our site only once; 24% of our visits were from users who visited our website 2-9 times during the quarter; and 30% of our visits originated from users who visited BHL more than 10 times during Q4, FY12. These percentages hold steady when compared with last quarter and the FY12 quarterly average.

Depth speaks to how extensively visitors used our content during a visit - whether they came to BHL only to view a single page or navigated through many pages within BHL in a single visit. Last quarter, 47% of our

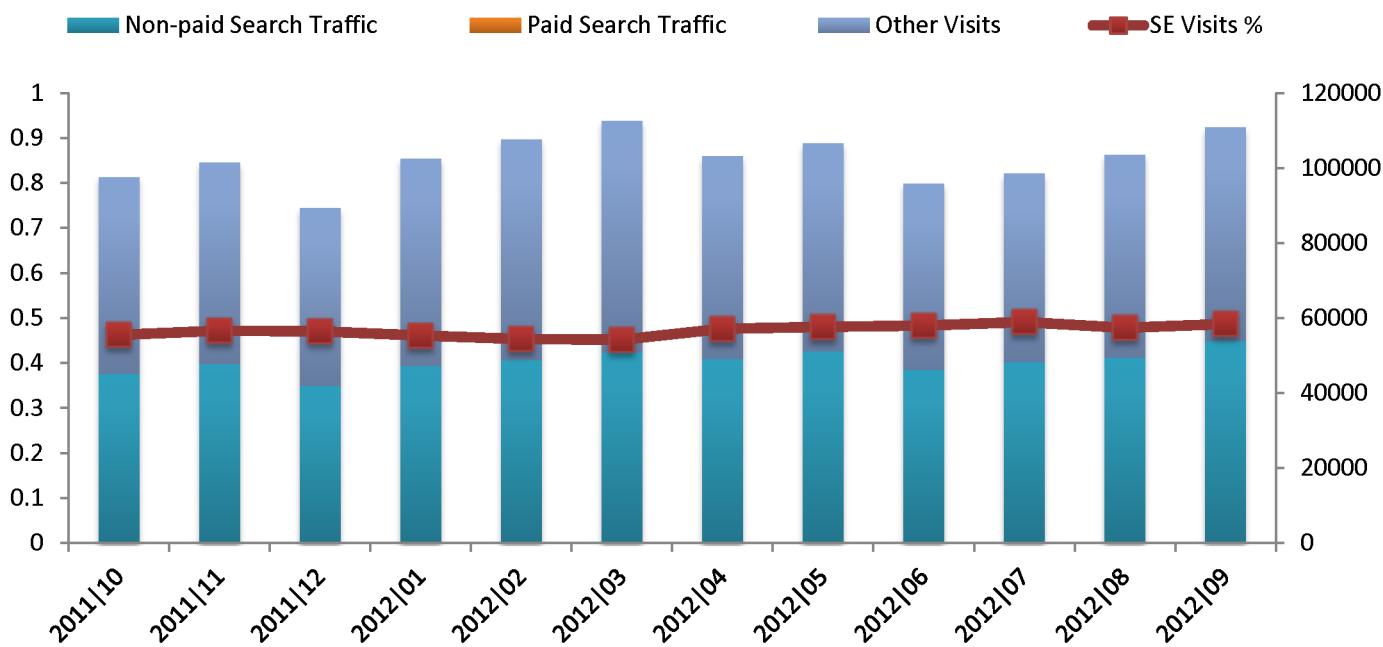|	Visits	Visitors	Pageviews
Q4 FY12	312,889	158,228	1,456,937
Q3 FY12	305,512	158,159	1,375,788
FY12 Quarterly Average	307,363	146,541	1,426,244

visits consisted of users viewing only a single page, while 49% of our visits involved viewing 2-19 pages in a single visit. Only 4% of our visits represented high depth engagement, or more than 20 pages viewed in one visit. This appears to be a steady trend for BHL, as these numbers are nearly identical to that seen in Q3, FY12, and the quarterly average for FY12.

Finally, length refers to the duration of a visit, and can be a good indicator of whether users are actually reading the content in BHL, or whether they quickly exit our website after arriving. This quarter, 64% of our visits lasted less than 1 minutes, while 7% lasted 1-3 minutes. 29% of our visits had a duration greater than 3 minutes. It is important to remember that a short visit does not necessarily mean the user did not glean anything from BHL; he or she may simply have downloaded the page visited to read later, without extending the length of the website visit.

WEBSITE
statistics

It is also important to consider where our traffic is originating from: whether people are coming directly to BHL or being directed to our site via search engines. As the red line in the graph below indicates, approximately 50% of our traffic over this past year originated from search engines, with the other half resulting from visits directly to BHL or as redirected from a site other than a search engine. This indicates both a strong core community going directly to BHL to find what they need, and the opportunity to grow our user base through individuals that find BHL as a result of search engines. Organizations need an even balance of both traffic types to remain healthy, and BHL is happily demonstrating just such a balance.

Search Engine Visits as Percent of Total Visits

Legend: Non-paid Search Traffic | Paid Search Traffic | Other Visits | SE Visits %

Months: 2011|10, 2011|11, 2011|12, 2012|01, 2012|02, 2012|03, 2012|04, 2012|05, 2012|06, 2012|07, 2012|08, 2012|09

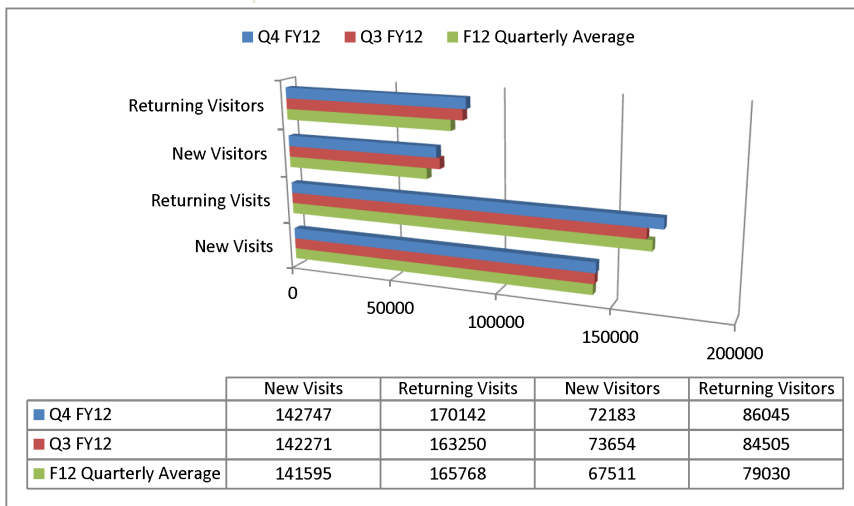|	New Visits	Returning Visits	New Visitors	Returning Visitors
■ Q4 FY12	142747	170142	72183	86045
■ Q3 FY12	142271	163250	73654	84505
■ F12 Quarterly Average	141595	165768	67511	79030

"BHL makes my research so much easier! I absolutely love it. A million times thank you!"
   - Lourdes Chamorro

"Without Biodiversity Library I couldn't do my research."
            - Sabine Brauckmann

For BHL, we're also interested in how many of our visitors are new visitors or returning visitors, what percentage of our visits are from new or returning visitors, and how this data trends over time. As shown in the graph above, this quarter, 54% of our visitors were returning visitors, while 46% were new visitors. This corresponds to 46% of our visits being "new visits."

1 ▮▮▮▮ 74,437
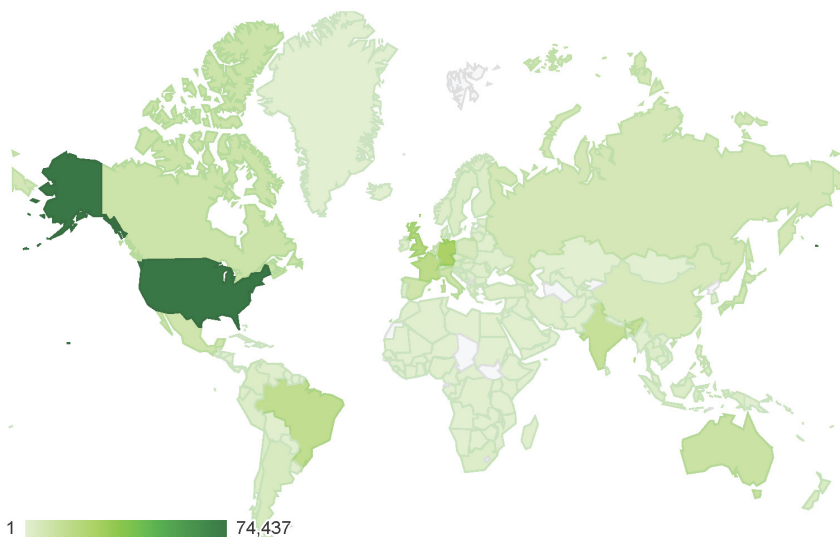
Finally, as our goal is to repatriate biodiversity knowledge to all parts of the world, we want to monitor how frequently our content is being accessed globally. The map to the left shows this information for Q4, FY12. Not surprisingly, the highest percentage of our traffic from a single country, at 24%, comes from the United States. Perhaps less obvious, the next highest country is Germany, contributing 8% of our total traffic.

SOCIAL media

BHL has an active presence on a variety of social media platforms, including Twitter, Facebook, Flickr, and a blog. These outlets serve as the chief means through which BHL news and developments are communicated to users.

For each platform, BHL staff articulated goals and metrics by which to determine the effectiveness of outreach activities. This section present the goals and metrics for each application for July-September, 2012. Ultimately, the goal for social media outreach is to drive traffic back to BHL itself. The success of this goal is measured by how many visits to BHL originate from each of our social media platforms each quarter.
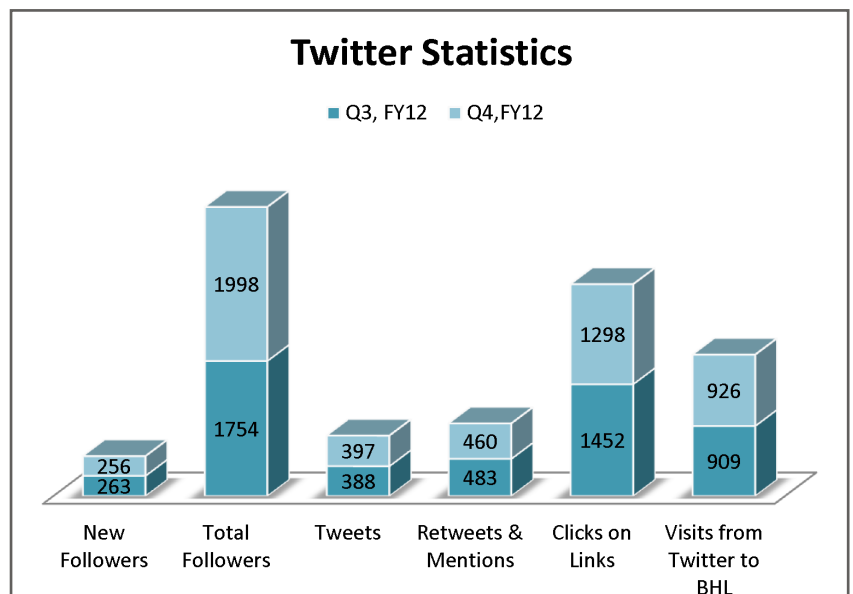
Twitter

@BioDivLibrary

BHL's goals for Twitter include fostering dialogue and promoting BHL resources.

Fostering dialogue refers to stimulating conversations about and increasing awareness of BHL via Twitter. This goal is measured by follower growth and retweets and mentions.

Promoting resources involves showcasing BHL content via Twitter. The effectiveness of staff efforts in this arena is measured by the number of clicks on links to BHL content within tweets and the number of tweets posted about BHL content.

Twitter Statistics

■ Q3, FY12   ■ Q4,FY12

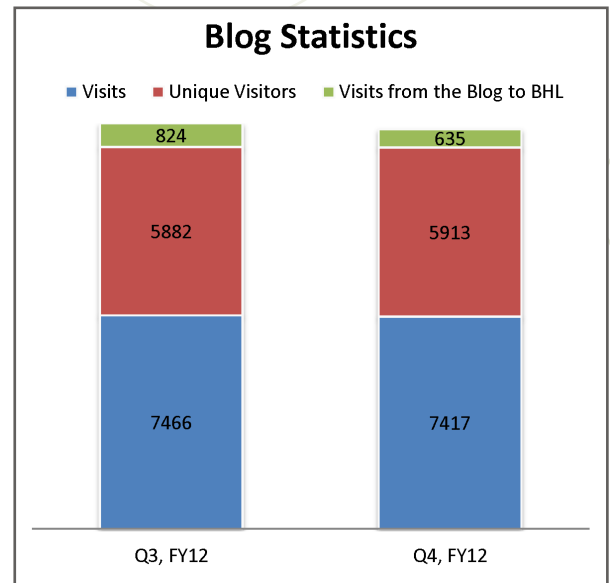| Category	Q3, FY12	Q4, FY12
New Followers	263	256
Total Followers	1754	1998
Tweets	388	397
Retweets & Mentions	483	460
Clicks on Links	1452	1298
Visits from Twitter to BHL	909	926

Blog

BHL goals for blogging include fostering dialogue with our users and promoting our services and resources. Our effectiveness in meeting these goals is measured by the number of visits to the blog and the number of unique visitors.

The blog serves as a "press release" application for BHL. Staff publish posts about project updates via this outlet. The blog also gives staff the opportunity to showcase important items in the BHL collection (through the weekly series "Book of the Week") and learn more about the people using our resources (through user interviews presented via the bi-weekly series "BHL and our Users").

blog.biodiversitylibrary.org

Blog Statistics

■ Visits   ■ Unique Visitors   ■ Visits from the Blog to BHL

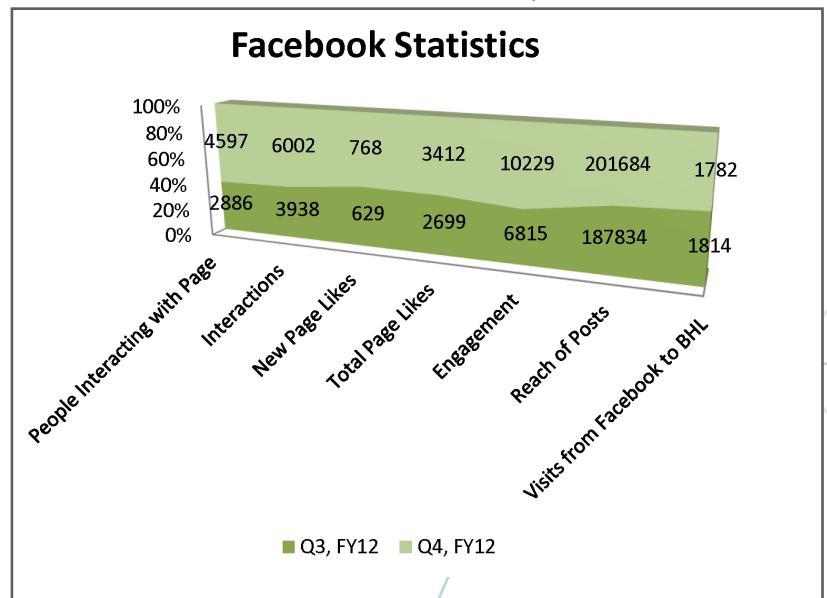|	Q3, FY12	Q4, FY12
Visits from the Blog to BHL	824	635
Unique Visitors	5882	5913
Visits	7466	7417

Facebook

BHL's primary goals for Facebook include promoting resources and fostering dialogue. BHL staff hope to promote resources by showcasing BHL content within posts on the Facebook page, and hope that these posts will foster dialogue by generating conversations about BHL via the Facebook platform.

To measure Facebook goals, BHL keeps a number of statistics, including the number of people interacting with our page (either by liking posts, adding comments to posts, sharing posts, or answering trivia questions), the number of these interactions, the number of people liking our page, the number of engaged users (number of people performing any action described in "interacting" plus the number of people who simply clicked on a link in a post), and the reach of our posts (the number of people who have seen any content posted on our page).

www.facebook.com/BioDivLibrary

Facebook Statistics

	People Interacting with Page	Interactions	New Page Likes	Total Page Likes	Engagement	Reach of Posts	Visits from Facebook to BHL
Q3, FY12	4597	6002	768	3412	10229	201684	1782
Q4, FY12	2886	3938	629	2699	6815	187834	1814

■ Q3, FY12   ■ Q4, FY12

SOCIAL media

Flickr

The BHL Flickr account has become one of the most user-celebrated aspects of the BHL project, prompting such statements as "I think I'm in love" and "My favorite Flickr in the whole world." The BHL collection contains thousands of scientific illustrations created over the past 500 years. In an effort to make these images more accessible to users, staff share many of them via the BHL Flickr account.

BHL's primary goals for Flickr are to document BHL visual resources used via other social media platforms (i.e. Facebook and Twitter), to provide a pool of image content for dissemination and promotional purposes, to promote BHL's visual resources to Flickr's user group, thus introducing BHL to a new community of users, and to foster interaction with BHL visual resources in new and innovative ways.

> "You have a very beautiful collection; I just wanted to give you my compliments. Your images are beautiful... Thanks for sharing it with the world!"
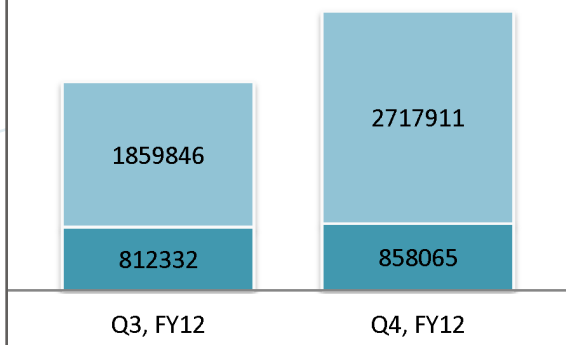> - Isandervanbeek, via Flickr
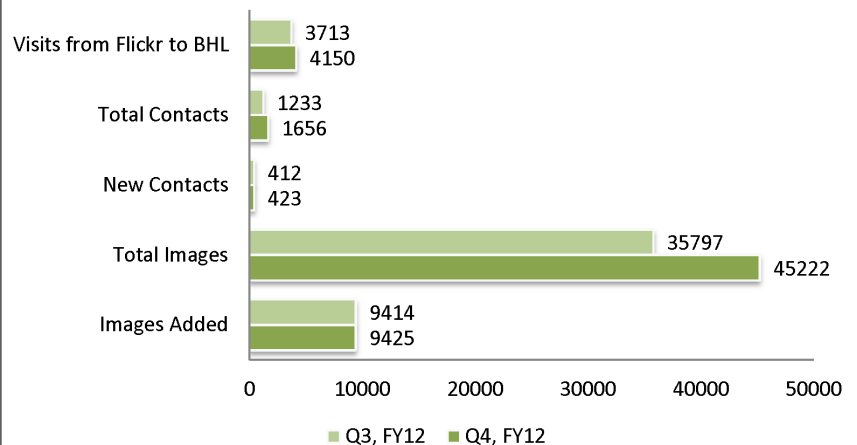>
> "This is fabulous. Thank you."
> - Jude Wrup, via Facebook

Views on Flickr Content

■ Views on Content   ■ Total Views

	Q3, FY12	Q4, FY12
Total Views	1859846	2717911
Views on Content	812332	858065

Flickr Statistics

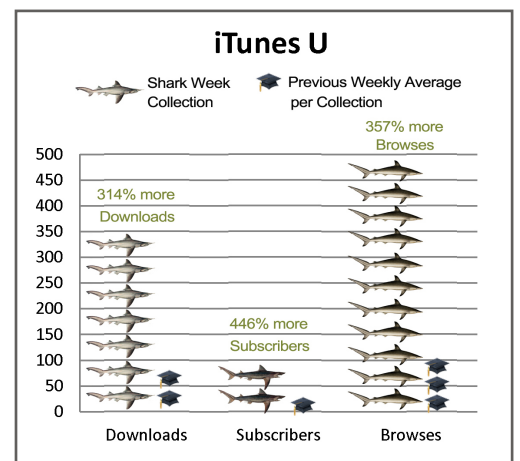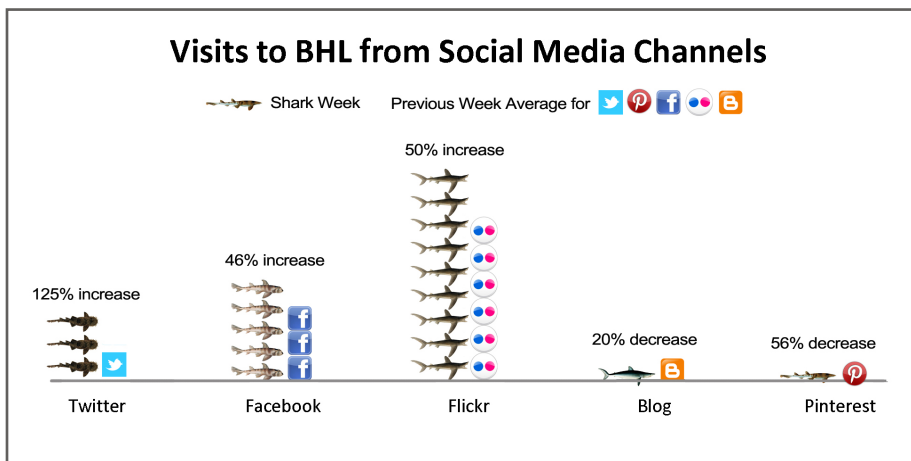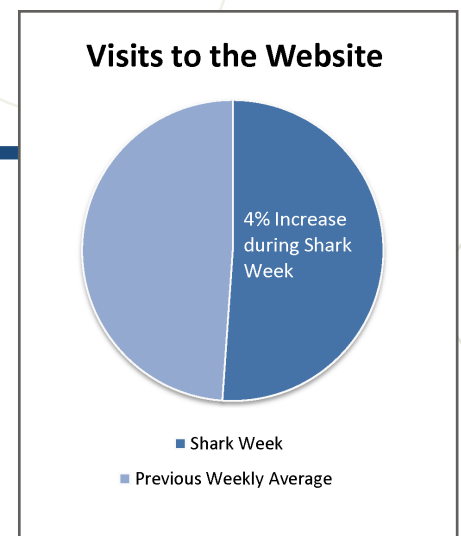|	Q3, FY12	Q4, FY12
Visits from Flickr to BHL	3713	4150
Total Contacts	1233	1656
New Contacts	412	423
Total Images	35797	45222
Images Added	9414	9425

■ Q3, FY12   ■ Q4, FY12

Shark Week

For the week of Aug. 12-18, 2012, BHL hosted a Shark Week campaign in celebration of Discovery Channel's famous week-long event. The campaign consisted of Facebook posts, Tweets, a blog post, Flickr images, and a new iTunes U Collection dedicated to sharks.

We measured the success of our campaign in relation to how much traffic our various outreach activities drove to BHL during the Shark Week campaign, as compared to the average traffic per week for the two months previous to the campaign, as well as how our iTunes U Collection performed in relation to our other iTunes U Collections. Below are the results.

Visits to the Website

4% Increase during Shark Week

■ Shark Week
■ Previous Weekly Average

Visits to BHL from Social Media Channels

— Shark Week   Previous Week Average for

- 125% increase — Twitter
- 46% increase — Facebook
- 50% increase — Flickr
- 20% decrease — Blog
- 56% decrease — Pinterest

iTunes U

Shark Week Collection   Previous Weekly Average per Collection

- 357% more Browses
- 314% more Downloads
- 446% more Subscribers

Downloads   Subscribers   Browses

In summary, our Shark Week campaign drove more traffic to our website in general and from most of our outreach applications. The blog was the only application that underperformed in both visits to the blog and visits from the blog to BHL. Although Pinterest drove less traffic to BHL, there was an increase in followers to the Pinterest account, indicating that people interacted with Pinterest more because of Shark Week but did not convert that interaction to visits to the BHL website.

In light of the success of this campaign, BHL is exploring other opportunities to structure outreach activities around popular events equivalent to Shark Week. Outreach Staff plan to publish one such campaign per month for the next few months, after which time the effectiveness of the activities will again be analyzed and revisions will be implemented as appropriate.

LEVERAGING
community knowledge

More than any other BHL initiative, Flickr tagging allows BHL to leverage the power of scientists, students, and the world at large to repatriate knowledge to all parts of the globe.

BHL has over 38 million pages of taxonomic literature, freely available worldwide to anyone with an Internet connection. But if you think BHL is just about text, you'll be pleasantly surprised. BHL books also contain thousands of gorgeous natural history illustrations from the past 500 years. These images are often hidden within the pages of our digitized books, unidentified and largely undiscoverable save by serendipitous chance. To liberate these images and allow them to be more easily used by the public and integrated into other biodiversity projects, we created the BHL Flickr. BHL's Flickr currently contains more than 46,000 images.

The Encyclopedia of Life, with which BHL is closely associated, is an online encyclopedia dedicated to creating a web page for every species on earth. These pages contain information about each species, links to mentions of those species in BHL, distribution maps, and a myriad of media, including images. EOL harvests many of their images from Flickr, including BHL images that are tagged with a species name machine tag.
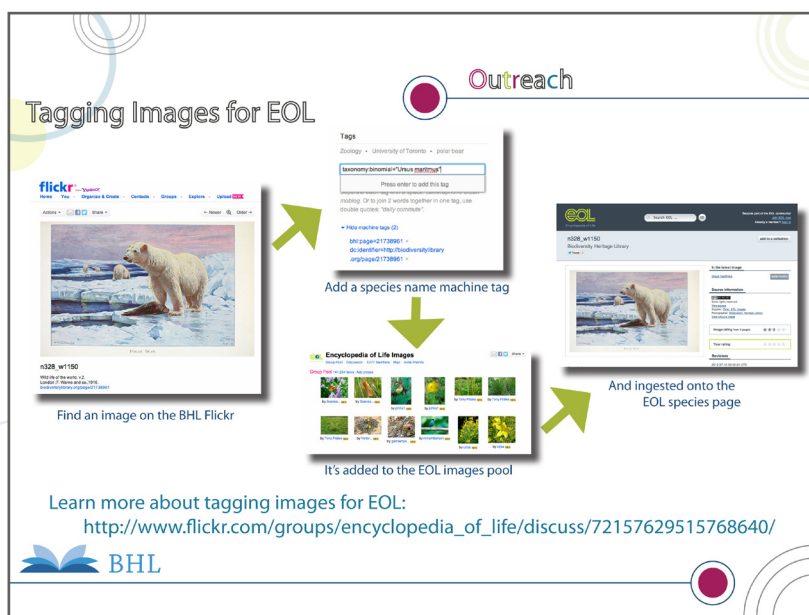
Machine tags are tags specially formatted to allow machines to read and understand them. For EOL, these tags tell machines which species (or other taxonomic designations) are depicted in each image. The format for EOL machine tags is "taxonomy:binomial=Genus species". "Binomial" can be replaced with another taxonomic tag, such as "genus" or "family", if identification can only be made at that level.

The Flickr tagging process from BHL to EOL

Besides allowing easy integration with third-party sites like EOL, adding species name tags allows users to search Flickr for a specific species and retrieve BHL images in their search results. Thus, tags increase the usability and visibility of BHL content.

While BHL is working on ways to automatically add species tags to images in Flickr, the current process requires manual application of these tags. Unable to tackle all 46,000 images alone, staff decided to call on the power of the masses and organize some Flickr Tagging Parties at the Smithsonian.

Staff at the first Flickr Tagging Party at the Smithsonian

On April 25, 2012, Smithsonian employees gathered for a 1 1/2 hour meeting during which BHL and EOL staff gave overviews of their respective projects and instructions on how to add taxonomic machine tags to BHL images. After a brief tutorial, guests were encouraged to begin tagging images from a prepared list of books. When tagging images, users run into a variety of challenges, including now-invalid species names, plates without species names, and names in foreign languages or in fonts that are difficult to read. Thus, BHL and EOL staff were positioned throughout the room to provide assistance when needed.

The 23 attendees at the first event tagged 170 images and provided such positive feedback that BHL staff hosted a second event for Smithsonian staff on July 18, 2012. Many attendees indicated that it was a particularly appropriate activity for students and encouraged staff to promote the events in educational communities.

Invigorated by the outcome of these events, staff are planning several events in the future, branching outside of the Smithsonian and into the public arena. They are also developing supplemental resources and tutorials to help promote and facilitate these activities. Though current resources limit the extend to which all tagging opportunities can be explored, the enthusiasm displayed by users to date warrants increased participation in this realm. There can be no doubt that, more than any other BHL initiative, Flickr tagging allows BHL to leverage the power of scientists, students, and the world at large to repatriate knowledge to all reaches of the globe.

CONNECTING with the public

In order to evangelize BHL to the world, staff at BHL's member institutions regularly give presentations, present posters, and publish papers about our digital library project. Presented below is a summary of the presentations, posters, and papers given or written by staff in Q4, FY12.

BHL is also always interested in hearing about how users are utilizing the resources in BHL. To present this information, BHL publishes a regular blog series entitled "BHL and Our Users." We've selected a post, written by our BHL-Australian colleague Joe Coleman, featuring one of our global users "Down Under" and presented it on the following page.

Title	Event or Publication Information
BHL & EOL Flickr Tagging Party	Gilbert Borrego, Grace Costantino, Bianca Crowley, & JJ Ford (Smithsonian Libraries). National Museum of Natural History. Washington, D.C., 18 July, 2012.
"What is BHL?"	Grace Costantino (Smithsonian Libraries). SIL Intern Demonstration at the National Museum of Natural History. Washington, D.C., 25 July, 2012.
BHL & EOL Booth	Connie Rinaldo (MCZ Harvard). Ecological Society of America 2012 Annual Conference. Portland, OR, 5-10 August, 2012.
"Engaging New Audiences with Specialized Data"	Connie Rinaldo (MCZ Harvard) & Cathy Norton (MBL WHOI). IAMSLIC 2012 Annual Conference. Anchorage, AK, 26-30 August, 2012.
"Building a Large Digital Library & Interacting with the World: The Biodiversity Heritage Library"	Matthew Person (MBL WHOI). 9th Workshop of the Digital & Computational HPS Consortium. Cambridge University, UK, 5-8 September, 2012.
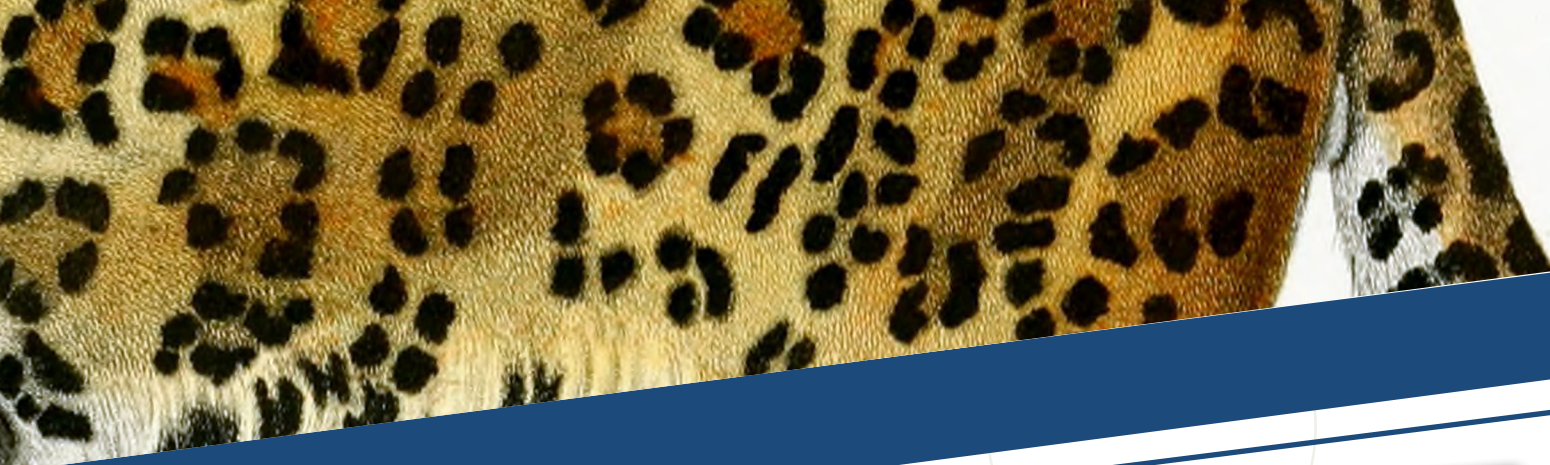
User Spotlight
Dr. Gary Poore

Dr. Gary Poore is based at Museum Victoria in Melbourne, Australia. As the curator of the museum's crustacean collection he has been researching the diversity of marine crustaceans for more than 30 years. He has been responsible for the naming of almost 400 new species over the course of his career and is renowned as a world expert on isopod and decapod crustaceans.

As a taxonomist, Gary's work requires that he regularly delve into the historical literature to ensure that any new species he might be describing has not been previously named, and that current nomenclature accords with the conventions of the International Code of Zoological Nomenclature. (It is surprising how much does not, he says). This involves searching potentially hundreds of documents dating back to 1758, the publication date of Carl Linnaeus's *Systema Natura*, the starting point of our modern nomenclatural conventions. To find and read the historical literature, Gary uses the BHL because it is always conveniently at his fingertips. "[BHL] saves me so much time", he says. "Without it, I would have to go through library catalogues, and if our library didn't have an article, I'd waste days or weeks waiting for inter-library loans."

Recently, Gary was asked by the Australian Faunal Directory to catalogue the species of Australian *Pentastomida*, or tongue worms, respiratory parasites of mammals, reptiles and birds. He was then encouraged to go on to publish a list of all the world's 124 species. This required Gary to delve into the literature back to the earliest mention of each family, genus and species and having to call on some detective skills as he traced the names from contemporary literature back to their first publication. This and other nomenclatural and taxonomic projects in which Gary is involved would not have been feasible without access to the resources in the Biodiversity Heritage Library.

Another feature of the BHL that Gary likes is the ability to create personalised portable electronic libraries of extracts from numerous journals using the PDF tools linked to bibliographic software. These complement, and even go some way to replacing, the huge collection of paper article extracts that line the walls of the Marine Invertebrates lab at Museum Victoria. "The BHL is a great resource for the researcher working in taxonomy", says Gary. "It provides easy access to the historical literature, right back to Linnaeus and beyond."

ABOUT
the bhl

The Biodiversity Heritage Library (BHL) is a consortium of 14 natural history and botanical libraries that cooperate to digitize and make accessible the legacy literature of biodiversity held in their collections and to make that literature available for open access and responsible use as a part of a global "biodiversity commons."

The BHL consortium works with the international taxonomic community, rights holders, and other interested parties to ensure that this biodiversity heritage is made available to a global audience through open access principles. Today, in partnership with the Internet Archive and through local digitization efforts, BHL has digitized over 39.6 million pages of taxonomic literature, representing over 56,000 titles and 108,000 volumes (Sept. 2012).

The published literature on biological diversity has limited global distribution; much of it is available in only a few select libraries in the developed world. These collections are of exceptional value because the domain of systematic biology depends more than any other science upon historic literature. Yet, this wealth of knowledge is available only to those few who can gain direct access to significant library collections. Literature about the biota existing in developing countries is often not available within their borders. Biologists have long considered that access to the published literature is one of the chief impediments to the efficiency of research in the field. Among other results, free global access to digitized versions of the literature would repatriate information about the earth's species to all parts of the world.

Since 2009, the BHL has expanded globally. The European Commission's eContentPlus program has funded the BHL-Europe project, with 28 institutions, to assemble the European language literature. Additionally, the Chinese Academy of Sciences, the Atlas of Living Australia, Brazil (through SciELO and BIREME), and the Bibliotheca Alexandrina have created regional BHL nodes. These projects will work together to share content, protocols, services, and digital preservation practices.

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* Institutions that contribute a $10,000 annual membership
   due to support BHL program development

> "Thank you for posting old books and images in the Biodiversity Heritage Library. I have made a small personal donation to the fund.
>
> I read this material, as an entomologist, and plan to show it in my biogeography class. I am interested in teaching resources for instructors. There is so much information that it is hard to find my way around it.
>
> Congratulations on this excellent resource. I hope it continues to grow."
>   - Dan Johnson

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