The Digital Commons: *A CPR Digest Special Issue*

A Resource Guide for Authors: Open Access, Copyright, and the Digital Commons

Charlotte Hess
IASCP Information Officer Indiana University, USA

If you haven't been paying attention, it may be hard to realize what a huge and pressing subject the issue of open access of information has become in the past few years. There are hundreds of conferences around the world and literally thousands of articles on the subject every year.

What's the big deal? Only the future of scholarly and scientific information!
It must first be noted that ***open access to information*** is a horse of a much different color than ***open access to land or water***. In the latter case, as all of you know, open access can mean a free-for-all, leading to overconsumption and depletion – the classic tragedy of the commons scenario. With information – and here we are focusing on distributed, digital information, the resource is nonrivalrous. **Open access** in the information ecosystem means free and unfettered access, without costs or permissions. Instead of having negative effects, open access of information provides a universal public good: the more quality information, the greater the public good.

This article aims to introduce you to the important issues about copyright and open access; to convince you that providing open access to your research is a right and a responsibility; and to provide concrete information and instructions so that all of you can easily contribute and enrich the global information commons. This is a push for institutional change, commoners, because few of you see yourselves as archivists, publishers, or librarians. But you must begin to take an active role in freeing information. The information that the world needs and values is in your hands.

The Crisis in Scholarly Information

> One of the most important bases of societal well-being, the scholarly communication system, is under siege.The free flow of information and discovery is severely threatened. It is a silent crisis. It has been developing incrementally during the last several decades .But for many faculty members; it has not yet become an urgent reality because it has been so slow in developing. In fact, a system that worked well for most of the 20th century is falling apart. If it is not addressed soon, the crisis in scholarly communication may have a devastating impact on research and scholarship.

From Scholars Under Siege

For many years there has been a rising crisis in scholarly communication. Journal prices have skyrocketed and libraries' purchasing power – no matter how wealthy the institution – has continued to decline, with a projected decrease of library purchasing power from 1995 to 2007 of 80% (Hawkins 1998). Even the most well-stocked libraries are forced to cancel their journal subscriptions year after year, in response to a financially unsustainable system, where the average price of a subscription to a scholarly journal was shown to have more than tripled between 1986 and 2000. In addition, digital information is much more fragile than hardcopy books and journals. Libraries used to own their collections and had control over their preservation. Now, more and more of the collections are in digital format. These collections are licensed, not owned. When the subscription license ends, there is no permanent collection of back volumes. Many subscription contracts limit usership and restrict interlibrary loan.

Digital information can easily and quickly be withdrawn, as has happened with thousands of "public documents" on U.S. government websites after 9/11. It can lack authority, as with a lot of online medical information. It can disappear as with certain bibliographic databases that publishers decide to no longer make available. IPR legislation, such as the Digital Millenium Copyright Act (DMCA), 1998, and the European Union Directive on Databases (EUDD), 1996, threatens traditional access to information. The DMCA established new copyright laws for digital information. Circumnavigation technology to allow "Fair Use" for educational purposes is illegal with digital information. Certain types of information that used to be in the public domain are now copyright- or patentable. The EUDD privatizes information that traditionally was in the public domain. Tracking the legislation on copyright and the use of digital information is a big challenge. Here is a selected list of the most relevant and important legislation list by the American Library Association Washington Office:

Anti-Piracy Legislation
Broadcast Flag
Complete Copyright Education
Copyright Articles
Copyright Court Cases
Copyright Legislative Agenda
Public Domain Enhancement Act
Database Protection Legislation
DMCA: The Digital Millenium Copyright Act
DRM: Digital Rights Management
Distance Education and the TEACH Act
Fair Use and Electronic Reserves
Fair Use Legislation
Legislation Flash Reports
Library Copyright (separate site)
Open Access to Research
UCITA: The Uniform Computer Information Transactions Act

International Copyright

The Hague Convention and Copyright
Free Trade Area of the Americas Agreement
Bi-Lateral Free Trade Agreements
UNESCO Convention on Cultural Diversity
World Trade Organization

The crisis in scholarly communication is compounded by the steady commodification of academia. Universities are increasingly intertwined with corporate interests. In the U.S., since the Bayh-Dole Act, universities have been patenting publicly-funded inventions and discoveries. Much is being written on the enclosure of "open science." While scientific research, particularly in the environmental sciences, is, of necessity, becoming more collaborative and more international, the global digital divide quickly separates the information haves from the have nots. In many parts of the world library collections have been devastated by war and poverty. Rising prices, restricted use, diminishing or depleted collections, fragile sources, unsustainable practices –all contribute to the enclosure of the *information commons*, which was the focus subject of the June 2003 Digest.

The Solution to the Crisis: Open Access (OA)

There is one solid antidote to this crisis: **open access**. Open Access is barrier-free sharing of research results with colleagues worldwide. This digital exchange enlarges our audience and increases our impact. The following argument about open access applies to scholarly information that is created for impact, not profit. It does not apply to works which help support the author or artist's career, as with much music and art. But most of you are not in that category. A university, institute, or organization pays your salary that obviates your having to rely on your publications for your income. OA advocate, Steven Harnad, makes the distinction between "give-away" and "non-give-away" literature. Researchers don't usually expect a fee or royalties for their work.

Peter Suber, a philosophy professor and perhaps the leading expert on OA wrote in *Nature* (June 2004)
"So even though readers, libraries, universities, foundations, and governments have their own perspectives on OA those that support the concept can guide, help or nudge authors. In this sense, authors have primacy in the campaign for OA, and the single largest obstacle to OA is author inertia or omission…Each individual author has within his/her capacity to make their work openly accessible. Most don't, it is speculated, because they are not informed.

There are several ways that authors can make their work freely accessible online:
1. By publishing your work in open access journals. There are now over 1000 peer-reviewed, open-access journals (See Box A on Page 4)
2. By submitting their **postprints** (published, peer reviewed papers) to an Institutional Repository or a OA Digital Library
3. By submitting their **preprints** (working papers) to an IR or DL.

Rationale for Open Access

Visibility and Impact

OA is a recent phenomenon, only made possible by digital media. It has been calculated that citation rates for online articles are significantly higher (measured as high as 286%) than for traditional journal articles. Since researchers generally write for impact, rather than money, increased citation rates further the professional reputation and careers of the authors. This visibility also benefits the home institutions, locally, as well as the worldwide community researchers. See Box B to find references to all of the major visibility studies to date.

Open Science

Open science is the tradition of scholars freely exchanging information and knowledge, leading to new discoveries growing out of older ones. This is Newton's conception of "standing on the shoulders of giants." But high prices and poor access to scholarly journals are rapidly eroding this tradition.

Distinguished scholar Arturo Gomez-Pompa recently wrote:

> It seems to me that something very wrong is happening to scientific publications. They are becoming expensive and, as a result, out of reach of students and scientists from developing countries. I believe that something has to change. As scientists, we want out articles to be read, discussed, and reproduced as many times as possible...Scientists need to consider seriously the Open Archives Initiative for biodiversity publications. We need to make our work accessible to the world…" Gomez-Pompa, A. 2004. "The Role of Biodiversity Scientists in a Troubled World." *BioScience* 54(3):217-225. p. 224

Likewise, a leading scientist addressed a conference in India:

> "Scientists in such [developing] countries need to find a more radical response by harnessing the new opportunities provided by information and communication technologies (ICTs). We need to break away from the existing model of publishing and communicating scientific knowledge. One way of doing this is to embrace the 'open-access' approach being promoted by the Budapest Open Access Initiative with its two complementary strategies of setting up interoperable open archives and promoting open-access journals. http://ncsi.iisc.ernet.in/pipermail/lis-forum/2004- March/000692.html

Bridging the Digital Divide

The digital divide is more than the gap in digital access between industrialized and developing countries. It is a gross imbalance between information from the "north" and information from the "south. The gap is reflected in the predominantly western content and languages of the Internet. Bridging the divide won't happen by western information being taken ***off*** the web. It can only happen by putting a large amount of indigenous and scientific information from Africa, Asia, and Latin America ***on*** the web. The President of the African Academy of Languages, H.E. Adama Samassekou spoke eloquently in favor of open access for Africa in November 2004 "Open access for all, constitutes at the same time, an intellectual requirement, an economical necessity, and a duty of human solidarity!" http://www.wsis-si.org/CODATA/codata-samassekou-en.pdf

Open Access would let transition & developing countries have free access to scientific knowledge, an absolute and fundamental requirement to build an effective education system, and to provide the basis of a sustainable intellectual and economical development. It would also help emergent countries to start Scientific Journals on their own. Only historical inertia keeps the current situation as it is now http://www.wsis-si.org/si-events.html.

Preservation and Sustainability

It has been estimated that the average lifespan of a URL is 44 days. Depositing eprints into trusted repositories and digital libraries helps preserve the scholarly record. Likewise, supporting OA journals makes good economic sense. OA journals archives are sustainable because they are so inexpensive. There are many systems of open-source software to build and maintain them. Many operate on a business model. Some journals charge the authors' university and transition countries, building upon a successful pilot project in 2002 that provided grants to 34 open access journals. To support open access and the international scholarly community, OSI will provide $50,000 in funding to support the publication in open access journals of articles by authors residing and working in countries where the Soros foundations network is active.
http://www.soros.org/initiatives/information/news/openacess_20041004

Myths about Open Access

· OA negates or gets in the way of peer-review

On the contrary, OA enhances the visibility of peer review. 92% of journals now allow author self-archiving of journal articles because they have learned that self archiving increases visibility and sales.

· OA is not allowed by publishers

If you happen to publish in one of the 8% of the journals restricting self-archiving, you can still self-archive your preprint. See: http://www.ecs.soton.ac.uk/~harnad/Temp/Romeo/romeosum.html

· OA works are not copyrighted

Some authors choose to put their works into the public domain (see Creative Commons below) but most choose to copyright their OA works.

· OA is time-consuming, complicated, and a pain in the neck.

It is true that author noncompliance is the single greatest barrier to OA! Providing preprints and postprints online is just a matter of practice. Too busy to register (free) and submit your eprint to the Digital Library of the Commons? Send your word file to us at dlc@dlib.indiana.edu and we will convert it to .pdf and mount it on the website for you.

Collective Action Initiatives for Open Access

The momentum for Open Access worldwide has been steadily growing over the past five years.

The Open Archives Initiative was launched in 1999. It develops and promotes **interoperability standards** that aim to facilitate the efficient dissemination of content. OAI creates protocols for metadata harvesting which means that one search (on Google, for example) will pull up all the relevant hits in all OAI-compliant archives, repositories, and digital libraries. http://www.openarchives.org/index.html

The **Scholarly Publishing and Academic Resources Coalition (SPARC)** is an alliance of universities, research libraries, and organizations built as a constructive response to market dysfunctions in the scholarly communication libraries. SPARC serves as a catalyst for action, helping to create systems that expand information dissemination and use in a networked digital environment while responding to the needs of scholars and academy. http://www.arl.org/sparc/index.html

Open Access News
Maintained by Peter Suber, these two resources on open access are invaluable:
Open Access News (Formerly Free Online Scholarship http://www.earlham.edu/~peters/fos/fosblog.html
SPARC Open Access Newsletter http://www.earlham.edu/~peters/fos/newsletter/archive.htm

Budapest Open Access Initiative 2001 The Initiative begins:
"An old tradition and a new technology have converged to make possible an unprecedented public good. The old tradition is the willingness of scientists and scholars to publish the fruits of their research in scholarly journals without payment, for the sake of inquiry and knowledge. The new technology is the internet. The public good they make possible is the world-wide electronic distribution of the peer-reviewed journal literature and completely free and unrestricted access to it by all scientists, scholars, teachers, students, and other curious minds. Removing access barriers to this literature will accelerate research, enrich education, share the learning of the rich with the poor and the poor with the rich, make this literature as useful as it can be, and lay the foundation for uniting humanity in a common intellectual conversation and quest for knowledge."
http://www.soros.org/openaccess/

Bethesda Statement on Open Access Publishing (2003)
Issued by a groups of researchers in order to encourage their organizations sponsor and nurture scientific research to promote the creation and dissemination of new ideas and knowledge for the public benefit.
http://www.earlham.edu/~peters/fos/bethesda.htm

Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (2003) was drafted "to promote the Internet as a functional instrument for a global scientific knowledge base and human reflection and to specify measures which research policy makers, research institutions, funding agencies, libraries, archives and museums need to consider.
http://www.zim.mpg.de/openaccessberlin/berlindeclaration.html

World Summit On the Information Society (WSIS)
http://www.itu.int/wsis/
WSIS was organized by the UN. The **WSIS Declaration of Principles** begins:
"We, the representatives of the peoples of the world, assembled in Geneva from 10-12 December 2003 for the first phase of the World Summit on the Information Society, declare our common desire and commitment to build a people-centered, inclusive and development oriented Information Society, where veryone can create, access, utilize and share information and knowledge, enabling individuals, communities and peoples to achieve their full potential in promoting their sustainable development and improving their quality of life, premised on the purposes and principles of the Charter of the United Nations and respecting fully and upholding the Universal Declaration of Human Rights." http://www.itu.int/wsis/docs/geneva/official/dop.html

Public Knowledge
http://www.publicknowledge.org

Public Knowledge (PK) is a US group of lawyers, technologists, lobbyists, academics, volunteers and activists "dedicated to fortifying and defending a vibrant information commons. "PK monitors the US Congress, Agencies, State Legislatures and International Bodies for any proposed legislation or policy that relates to intellectual property or technology policy. It also runs the Open Access Project promotes the free and unrestricted world-wide electronic distribution of peer-reviewed journal literature; the Creator's Project works to make copyright and technology work for artists; the Global Knowledge Initative "champions the public's stake in international intellectual property rights."

The Conservation Commons
Formerly called the "Biodiversity Commons", this is an important initiative that recognizes the necessity of free and open access to information in all areas of environmental and conservation science. On May 25 and 26, 2004, a group of 48 representatives from 27 organizations met at the Headquarters of IUCN - The World Conservation Union – in Gland, Switzerland, with the goal of exploring the establishment of a new paradigm for the sharing of conservation-related data, information and knowledge – a global knowledge "commons". Participants in the meeting included representatives from the conservation and scientific communities, multilateral organizations, indigenous people, and the private sector, who recognized the potential of this initiative to improve informed decision Emaking as well as to accelerate the drive towards achieving the 2010 Target on Biodiversity adopted by the global community in the Johannesburg Declaration. The meeting generated a highly constructive exchange of ideas on the notion of a Conservation Commons. A draft statement of principles was developed through discussion and dialogue, and subsequently revised by the interim steering committee for the Conservation Commons established during this meeting (Box C above).

Institutional repositories and digital libraries

An institutional repository is a digital, open access facility generated by a university or other home institution. Content usually includes working papers (preprints) articles, en during teaching materials, dissertations and theses, slides, images, etc. Since the development at MIT of a new, open source software for repositories, called *DSpace*, IRs are rapidly spreading throughout the world. They expand access and greatly increase the impact of research. They also increase visibility of the home institution. Facilitating the evolution of open access to scholarly information, IRs add to the global commons of trusted, interoperable, distributed scholarly information. Digital Libraries are online facilities that can contain the same kind of content as IRs but are usually disciplined focused rather than institution-focused. The Digital Library of the Commons (DLC) http://dlc.dlib.indiana.edu is a prime example. It uses open source software, Emaking prints, and is OAI compliant. See more on the DLC below.

Both IRs and DLs are easily sustainable. With an initial setup of open-source software and OAI protocols, and some institutional server space, maintenance is not difficult. Depositing new articles takes only a few minutes, and can be done by individual authors, not archive managers. There are many helpful resources for setting up IRs and DLs. See, for instance, the SPARC Institutional Repository Checklist & Resource Guide by Raym Crow at http://www.arl.org/sparc/IR/IR_Guide.html

Open Source Software EPrints software http://software.eprints.org/ was the first open source software for digital libraries, specifically designed for "refereed research literature online through author/institution self-archiving."
DSpace http://www.dspace.org/ is rapidly becoming the OS of choice because it is designed to accept other media besides text, such as video, multimedia, etc.
Greenstone http://www.greenstone.org/cgi-bin/library is also a very attractive software for a digital library or IR.

Exemplary Open Access Facilities

Bioline International http://www.bioline.org.br/ is a not-for-profit electronic publishing service committed to providing open access to quality research journals published in developing countries. BI's goal of reducing the South to North knowledge gap is crucial to a global understanding of health (tropical medicine, infectious diseases, epidemiology, emerging new diseases), biodiversity, the environment, conservation and international development. With peer-reviewed journals from Brazil, Cuba, India, Indonesia, Kenya, South Africa, Uganda, Zimbabwe and to come, BI provides a unique service by making bioscience information generated in these countries available to the international research community world-wide.

SciELO http://www.scielo.org/ hosts open access journals published in Latin American countries, mainly Brazil, Chile, and Cuba.

BioMed Central http://www.biomedcentral.com/home/ is an independent publishing house committed to providing immediate free access to peer-reviewed biomedical research. All the original research articles in journals published by BioMed Central are immediately and permanently available online without charge or any other barriers to access. This commitment is based on the view that open access to research is central to rapid and efficient progress in science and that subscription-based access to research is hindering rather than helping scientific communication.

Public Library of Science http://www.plosbiology.org *PLoS Biology* features works of "exceptional significance" in all areas of biological science, from molecules to ecosystems, including works at the interface with other disciplines, such as chemistry, medicine, and mathematics. All works published in the *PLoS Biology* are open access. Everything is immediately available without cost to anyone, anywhere — to read, download, redistribute, include in databases, and otherwise use — subject only to the condition that the original authorship is properly attributed. Copyright is retained by the author. More information on the PLoS license is available at
http://www.plosbiology.org/plosonline/?request=getstatic&name=license

ArXiv.org http://arxiv.org/ is the oldest e-print archive, serving the fields of physics, mathematics, non-linear science, computer science, and quantitative biology.
"It is an automated distribution system for research articles, without the editorial operations associated to peer review. As a pure dissemination system, i.e., without peer review, it operates at a factor of 100 to 1000 times lower in cost than a conventionally peer reviewed system. This is the real lesson of the move to electronic formats and distribution: not that everything should somehow be free, but that with many of the production tasks automatic or off-loadable to the authors, the editorial costs will then dominate the costs of an unreviewed distribution system by many orders of magnitude."

eScholarship Repository, University of California http://repositories.cdlib.org/escholarship/ contains around 6200 eprints (preprints and postprints) as of March 2005.

Digital Library of the Commons (DLC) http://dlc.dlib.indiana.edu is your archive/library/repository! There are now over 1100 full-text articles, conference and working papers, and dissertations. The single biggest obstacle to a larger volume of content is author noncompliance at the individual level. Of the 1100+ documents, 936 are papers from IASCP conferences. But very few authors self-archive their papers at this time. ***We hope that this issue of the Digest will motivate many of you to submit your preprints and postprints***

Coming this year to the DLC:
· Full-text searching
· Image database from commons field research

· The *Comprehensive Bibliography of the Commons* was last updated in April 2004 with 39,888 citations and 6200 abstracts. This April it will contain over 43,000 citations and 8200 Abstracts Submit as many of your research papers on the commons as you wish! And please give us feedback about the submission process. We want to make it as clear and painless as possible.

hess@indiana.edu