# A global environmental knowledge network

Conservation commons is a network of committed global conservation organisations who contribute data and share environmental information.

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## Organisational efforts for biome

As, the environmental degradation, species decline, and habitat loss continue to accelerate, the earth's life support systems, as illustrated of late in the Millennium Ecosystem Assessment (2005), are under increasing stress – in some cases to the breaking point, by human activity. Much of the world's biodiversity now exists solely in isolated reserves or protected areas, and although there are more organisations and groups devoted to conservation than ever before – things are getting worse.

Environmental organisations, however, generally do not directly control or 'own' the biodiversity and natural resources they are seeking to conserve, and thus in most cases, cannot act directly to preserve these resources. The common mission of these organisations, rather, is to better understand the natural world and the stresses that human society is placing on the environment. They also want to develop and perfect approaches for using and conserving these resources in a responsible and equitable manner, and influence those whose decisions most directly impact biodiversity. Indeed, generating comprehensive data, expertise, and knowledge on the distribution, conservation, and sustainable use of biodiversity are central tenets of the conservation community.

Information, therefore, is arguably the most valuable contribution made by the environmental community towards the preservation of the web of life on this planet.

## Data conservation for environment conservation

Digital information and data resources, on the other hand, are what economists term 'non-rivalrous' resources. That is, each incremental 'use' does not diminish either the quality nor the availability of these resources, once created and stored in a digital environment, these assets can be used, transferred, and improved indefinitely – rapidly (and exponentially) expanding our understanding of the natural world and how best to conserve it. Much of the data, information, or expertise that the conservation biologists and ecologists require is fragmented, difficult to find, or simply not accessible to the conservation community.

This challenge is magnified where varying data formats and standards limit 'interoperability' – or how data contained in independent systems may interconnect –impeding conservation efforts domestically, as well as at regional and global levels.

In the event that we are able to identify the resources we need, difficulties abound when we attempt to integrate the plethora of data and information into useful forms. Common standards to easily relate, say, taxonomic records with bio-geographic information such as soil or vegetation types, or 'best practice' regarding the conservation of a particular taxonomic group or ecosystem in a way useful for policy makers, in most cases simply do not exist.

Information sharing initiatives may also run up against substantial cultural, institutional, and legal barriers. In the case of conservation organisations, while they may share a common mission they are also friendly rivals (and at times competitors) with respect to funding and public attention.

Indigenous communities have also voiced strong concerns that they have increasingly lost control of their knowledge resources – indeed their cultural heritage– to commercial or other interests. These challenges also provide opportunities for conservation agencies to collectively find solutions.

## Identifying Solutions

Conservation and research organisations wishing to actively pursue an open access approach to information and knowledge management could simply act unilaterally and place their assets in the public domain. This response, however, poses the potential constraints of information resources created for scientific, educational, and related purposes be used for commercial gain. These considerations led to a proposed alternative as a complement to the pure public domain. The notion of a biodiversity or conservation 'knowledge commons', defining a framework of free yet equitable use for data, information and knowledge resources (i.e. a 'zone of fair use') began to take root in the mid-1990s.

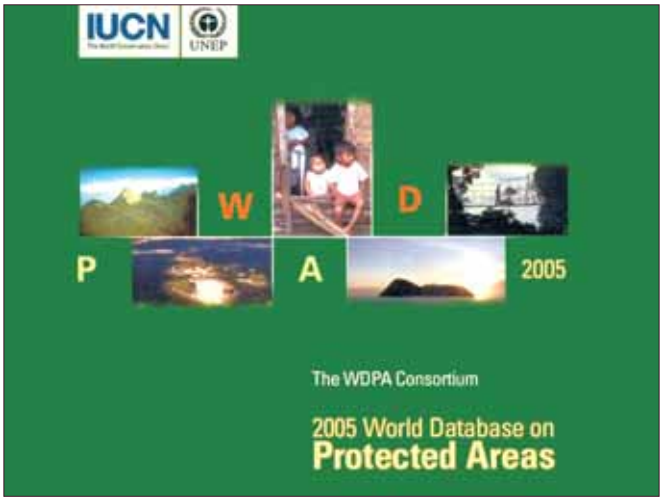
A group of prominent conservation organisations came together in 1995 to establish an institutional framework for data and information sharing, the Biodiversity Conservation Information System (BCIS) and build on the simple notion that by working together to effectively share information resources the conservation community could achieve far more than through individual action. Led by Colin Bibby of Birdlife International, this effort paralleled similar initiatives gaining momentum in the open source software community, the creative arts, and medical research fields. The purpose of BCIS was to encourage and nurture the conscious sharing of biodiversity knowledge resources within the global conservation community, and to support environmentally sound decision-making and action.

### BCIS Consortium Members

- Birdlife International
- Botanical Gardens Conservation International
- Conservation International
- ISIS
- IUCN Commission on Ecosystem Management
- IUCN Commission on Environmental Law
- IUCN Species Survival Commission
- IUCN World Commission on Protected Areas
- The Nature Conservancy - NatureServe
- TRAFFIC
- Wetlands International
- The World Conservation Monitoring Center

The results of this initiative, however, were mixed. With the World Wide Web, and the information technology architecture supporting it just beginning to take shape, it became clear that the information sharing ideas of BCIS were slightly ahead of existing capabilities. Institutional constraints were perhaps even more ubiquitous. Information, like biodiversity, is a precious resource. Many conservation and research groups preferred to move cautiously with respect to opening full access to resources they had invested a great deal in creating. One important direct result was the visiting committee organised and drawn from the BCIS Consortium to review the UNEP-World Conservation Monitoring Centre (WCMC) protected areas database. This work led directly to the formation of the World Database on Protected Areas Consortium, and ultimately to the release of three successive versions of the WDPA as an open access information resource to the global community.

Several years after the conclusion of the BCIS initiative, a group of 48 representatives from 27 organisations; met in May 2004 at The World Conservation Union (IUCN)'s Headquarters in Gland, Switzerland. Representatives included many of the original BCIS members, the scientific and research community, multilateral organisations, indigenous people, and the private sector. The meeting generated a highly constructive exchange of ideas on the notion of conservation knowledge 'commons'.




*To view the 2005 World Database visit: http://parksdata.conserveonline.org*

A draft set of core Principles were debated, and refined and a final set of Principles for the Conservation Commons were presented to, and accepted by, the IUCN Membership at the World Conservation Congress of November 2004. The concerns raised in the intellectual property rights debate, and particularly traditional knowledge, are explicitly addressed through the responsible use and due attribution provisions of the Principles and implicitly through the notion that data providers may specify 'terms of use' and limit access as they see fit. The Principles have generated an enormous amount of interest and dialogue, and to date over 40 organisations from a wide variety of sectors, both local and global, have formally endorsed these Principles.

Over the past 10 years since the creation of BCIS, the reach and capacity of the global IT infrastructure has expanded exponentially, and conservationists are much more adept at taking advantage of it. The open source movement has also grown rapidly, and new open access initiatives abound. In addition, the notion that conservation

To endorse the principles, to join the online forum or to contribute data and content, visit *www.conservationcommons.org*

## PRINCIPLES OF THE CONSERVATION COMMONS

**Principle 1**

**Open Access:** The Conservation Commons promotes free and open access to data, information and knowledge for conservation purposes.

**Principle 2**

**Mutual Benefit:** The Conservation Commons welcomes and encourages participants to both use these resources and to contribute data, information and knowledge.

**Principle 3**

**Rights and Responsibilities:** Contributors to the Conservation Commons have full right to attribution for any use of their data, information, or knowledge, and the right to ensure that the original integrity of their contribution to the Commons is preserved. Users of the Conservation Commons are expected to comply, in good faith, with terms of uses specified by contributors and in accordance with these Principles.

organisations must work together on a variety of fronts, and in particular in sharing the primary commodity they generate – information – is now an ethic shared by a much broader group of managers and practitioners in the conservation community, from CEOs to project officers, than the few 'early adopters' of a decade earlier. The Principles of the Conservation Commons are also a reflection of a number of important and commonly held values regarding the use of information in the scientific and conservation communities – shared responsibilities, fair play, due attribution, and ultimately managing and maintaining quality control over data and information assets.

## Putting Principles into Practice

The Conservation Commons is first and foremost an idea, and the Principles are at the centre of this idea. They encourage organisations and individuals alike to ensure open access to data, information, expertise, and knowledge resources on the conservation of biodiversity, allowing others to benefit from and innovate with these assets in service of a universally held mission. More importantly they provide a common ethical 'playing field', to share information with confidence that these resources will not be used for purposes for which they were not intended.

Equally as important, participants in the Conservation Commons recognise the need to focus attention on improving efficiencies in the creation, use and management of information critical for conservation efforts. A common approach – and common standards – to sharing data and information will make it possible to quickly and easily find conservation information, inform key policy development processes, and learn more effectively from past successes and failures. At the same time, effectively leveraging existing information assets will help to create new ones and address knowledge gaps, potentially generating huge benefits for future conservation work.

Many initiatives for generating specific data sets on biodiversity and conservation, such as the Global Biodiversity Information Facility, the Species Information System, and others, already exist or are being developed. The Conservation Commons will not duplicate these efforts. Rather, this initiative will promote an open access framework, as outlined in the Principles, and directly support integration and logical synthesis of data and information resources and technical 'interoperability' between these systems. This would entail as a first step, to develop, test, and adjust data sharing architecture (flexible and adaptable), in order to effectively link a limited number of key independent systems.

Most aspects of environmental conservation are place-based. Whether it is species, protected areas, hot spots, or viewed through the lens of a private company wishing to utilise natural resources – conservation successes or failures and the work of conservationists throughout the world is largely focused on key sites, places, and ecosystems – all of which may be defined geographically.

This site-based focus lends itself well to a new generation of web-enabled geographic information systems, capable of incorporating and intelligently organising data and information well beyond that which was capable in printed thematic maps. A number of initiatives, such as the NASA 'Protected Area Archive' and 'World Wind' initiatives, the National Geographic Society's 'World Base-Map of Conservation', and Harvard Professor E.O. Wilson's 'Biodiversity Atlas' are experimenting with this approach – creating (or seeking to create) highly interactive open access and web-enabled biodiversity information resources organised through a geographic interface.

The Conservation Commons is experimenting with GIS-based data sharing models and working with existing databases and systems in the development of a web-enabled data sharing model which incorporates large volumes of data in an easily manageable and intelligent retrieval system.

## Getting Involved

The international community made a commitment in Johannesburg to significantly reduce the rate of biodiversity loss by 2010, as well as to track progress towards achieving this target. Open and efficient access to the best available scientific information, knowledge resources, and best practice, and effective cooperation in accessing and sharing these assets, is central to this effort - with anything less significant progress towards achieving this target will not be made.

A straight forward way to assist in this process is through endorsement of the Principles of the Conservation Commons. The Principles may be consulted and endorsed on line at *www.conservationcommons.org*, which also provides a variety of additional resources, access to discussion groups, and background information. The open access, responsible use, and due attribution provisions of the Principles is central to this initiative. Endorsement of these Principles represents an explicit step by participating organisations towards joining a rapidly growing community of organisations working together to put these values into practice.

Comprehensive and easily accessible information, and expert knowledge, on biodiversity and its conservation is a long-held dream and this cooperative approach based on common values will help to ensure that this reality is open to all and global in scope. ■