



**Support to Building the Inter-American Biodiversity  
Information Network**

**Trust Fund #TF-030388**

**Overview Scoping Document**

**IABIN in the Context of Key International Programmes and  
Initiatives in Biodiversity Information Sharing**

**(Document 1)**

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**Support to Building IABIN (Inter-American Biodiversity Information Network)  
Project**

**Overview Scoping Document**

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in Biodiversity Information Sharing**

**Background**

The World Bank has financed the current support work under the Japanese Consultants Trust Fund. The objective is to assist the World Bank in the completion of project preparation for the project Building IABIN (Inter-American Biodiversity Information Network), and for assistance in supervision of the project. The work undertaken covers three areas: background studies on key aspects of biodiversity informatics; direct assistance to the World Bank in project preparation; and assistance to the World Bank in project supervision. The present document is one of the background studies.

The work has been carried out by Nippon Koei UK Co Ltd, in association with the UNEP World Conservation Monitoring Centre.

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## **Report Summary**

This document defines the scope and extent of “biodiversity information” and the intended role of IABIN, and an overview of the range of international information networks and processes currently sharing biodiversity information. It is a preliminary overview document, helping to define the “niche” that IABIN will occupy in the global context.

The stated objectives for IABIN indicate that the scope of “Biodiversity Information” should be taken to include biological information related to the five categories (Taxonomic Information, Species Information, Protected Areas, Ecosystems and Responses), but to exclude pollution and resource extraction information. That is, IABIN will be a network for the exchange of **biodiversity** information (broadly defined) but not an Inter-American **Environmental** Information Network. This understanding forms the context in which we will be examining and recommending methods, standards and good practices. Another key point extracted from the stated objectives of IABIN is the emphasis on providing access to scientifically credible biodiversity information **currently existing** in individual institutions and agencies in the Americas. We are therefore not concerned with networks and methods that serve to collect raw data, but rather, those that share or exchange information between custodial institutions.

A recent study identified some 289 information sources and networks related to biodiversity, and another 66 programmes or initiatives aimed at harmonisation and integration. Of these, 13 key global and regional programmes are profiled in this report, all of which provide elements that support, or purport to support, the stated objectives of IABIN – that is, to facilitate the exchange of biodiversity information between institutions with a target audience of “decision-makers”. These existing programmes overlap in both geographic scope and subject content. UNEP.Net, the CBD Clearing House Mechanism, UNEP-WCMC and the Millennium Ecosystem Assessment all have a broad sweep of subject matter – covering all the main information categories, although with varying emphasis. There is clear overlap between the species-related data maintained by UNEP-WCMC and the more focused database of BirdLife International, and between the general GBIF and more specialised BioNET, particularly with regard to taxonomy capacity building. While these programmes co-operate and interlock in various ways, they cannot be said to be either rationalised or fully harmonised. The key regional players offer several examples of database structures for species information (such as that used by NatureServe and the ATTA system of INBio), and good examples of regional and sub-regional networks, and should be adopted to the extent possible.

Some of the principal considerations for an appropriate “niche” for IABIN are:

- IABIN should seek to build on past successes and established national and sub-regional models, and seek further convergence and integration. An emphasis should be placed on using available technology while improving the coverage and appropriateness of information for decision-making, rather than on advancing technology tools.
- IABIN should consider how best to build on the current foundation through such methods as developing catalogues of useful technologies and compilation of case studies, in addition to data exchange facilitation. This will best be done by defining a small number of priority themes (as has been done in proposing Thematic Networks), rather than trying to advance on all fronts at once.
- Within thematic areas, needs should first be established – related to substantive issues and decisions that need to be addressed – followed by assessment of the principal obstacles to information exchange. Having identified the obstacles, whether technical, scientific or organisational, IABIN can then focus on solutions.
- The principal pitfall to avoid is to promote or facilitate information exchange for its own sake, rather than being directed at information exchange to address important regional issues.

## CHAPTER 1 INTRODUCTION

### 1.1 Purpose

The purpose of this document is to provide the context within which IABIN is being built and will participate. It defines the scope and extent of “biodiversity information” and the intended role of IABIN, and an overview of the range of international information networks and processes currently sharing biodiversity information. It is therefore a preliminary overview document to provide the background for the other deliverables of the IABIN Support Project, helping to define the “niche” that IABIN will occupy in the global context.

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### 1.2 Objectives of the IABIN Support Project

The project “Support to Building the Inter-American Biodiversity Information Network” (the IABIN Support Project) - is to provide guidance and supporting information to the World Bank, to assist it in developing and managing the project “Building the Inter-American Biodiversity Information Network” (abbreviated as B-IABIN, as distinct from IABIN the network).

Support to the Bank is provided in three parts as follows:

- (I) background studies on key aspects of biodiversity informatics
- (II) provision of inputs to assist the Bank with project preparation
- (III) provision of assistance to the Bank in project supervision.

The first of these is the most important (in terms of resource allocation), the objective of which is to provide the Bank with a better understanding of tools and trends in international informatics, to enable the Bank to better execute its functions. In summary, the support project is assisting the Bank to manage and execute the project.

### 1.3 Objectives of IABIN

The following extract from the GEF Project Brief gives a good overview of the purpose of the GEF B-IABIN Project aimed at developing and supporting IABIN:

*The project development objective is to:*

- (i) develop an Internet-based, decentralized network to provide access to scientifically credible biodiversity information currently existing in individual institutions and agencies in the Americas.*

*(ii) provide the tools necessary to draw knowledge from that wealth of resources, which in turn will support sound decision-making concerning the conservation and sustainable use of biodiversity (in doing so, this project will support implementation of Article 17 of the Convention on Biological Diversity (CBD) in promoting technical and scientific co-operation, and thus contribute directly to implementation of the CBD Clearing-House Mechanism (CHM)) as well as in other areas critical to development and poverty alleviation.*

*The project will implement IABIN at a regional level through:*

- Assessing the information needs of the biodiversity community, decision makers and stakeholders in the region;*
- Concurring on a set of standards, protocols, tools, and methodologies that will enhance the ability to search, retrieve, and analyze information across networks (including georeferenced data, quantitative and qualitative data, information, and knowledge);*
- Digitizing relevant data held in non-electronic forms, thereby increasing the amount of biodiversity information accessible through the network;*
- Exchanging scientific expertise through collaborative projects and training and other efforts to build capacity in human and technological resources;*
- Producing value-added information such as studies and analyses; and*
- Supporting national CHM nodes to help provide the clearing-house functions mandated in the CBD and in subsequent Conference of the Parties (COP) decisions.*

*The benefits are numerous. IABIN will:*

- Promote and facilitate access to the information necessary for ensuring conservation and sustainable use of biological diversity in all appropriate sectors including agriculture, tourism, and forestry;*
- Improve regional co-operation for biodiversity management through sharing of knowledge and expertise;*
- Provide the capacity to address critical issues — invasive species, migratory species, amphibian declines, and the spread of diseases, among others — at a regional level;*
- Allow the identification of gaps in knowledge and new fields of interest and facilitate consensus-building on a research agenda to support biodiversity conservation; and*



- *Improve the quality of biodiversity projects (both at preparation and during supervision) in the portfolio of the Global Environment Facility (GEF), the World Bank, and other financiers*

It should be noted that IABIN, the network, in fact already exists, and an interim Web “portal” ([www.iabin.net](http://www.iabin.net)) is in operation. The draft Project Implementation Plan (PIP) for B-IABIN provides a brief history:

*Responding to the importance in the Americas of protection of biodiversity, the Inter-American Biodiversity Information Network (IABIN) was officially mandated at the Summit of the Americas on Sustainable Development, convened by the Organization of American States in Santa Cruz de la Sierra, Bolivia, in December 1996. IABIN is an Internet-based forum for technical and scientific co-operation that seeks to promote greater co-ordination among Western Hemisphere countries in the collection, sharing, and use of biodiversity information relevant to decision-making and education. The objective of IABIN is to promote sustainable development and the conservation and sustainable use of biological diversity in the Americas through better management of biological information and better decision-making. While IABIN is envisioned as a distributed system of data providers in which the data is maintained and controlled by the provider, a single point of access to the integrated resources of the network is a key component of IABIN.*

*Since IABIN's inception in 1996, three IABIN Council meetings have been held with the IABIN Focal Points from 34 Countries, and a broad representation from the international, NGO, and private sector community. The IEC (IABIN Executive Committee) is comprised of 8 Countries and an IGO/NGO member, currently GBIF (Global Biodiversity Information Facility).*

The PIP also indicates some areas of concentration for IABIN, as follows:

*Throughout 2003, during the PDF phase of the GEF project, sub-regional specialists have been working with potential CIs (Coordinating Institutions) to plan the implementation of TNs (Thematic Networks) in various thematic areas. This work includes documenting implementation requirements and activities, developing memoranda of understanding between IABIN and the institutions leading the development of the network (cost-sharing agreements), and obtaining letters of intent from the data-providing institutions. Documentation for each TN contains: justification, objectives, products, participants, overall costs, and duration. The TNs currently being proposed are:*

- *Basic biodiversity infrastructure projects: Specimens, Species, Ecosystems*
- *Cross-cutting projects: Invasive Species and Pollinators.*

#### **1.4 Scope of “Biodiversity Information”**

The term “biodiversity information” is difficult to define in a global context, for there is no consistent and accepted meaning. Various views as to the scope and meaning have evolved from different sectors of the environmental science community, and three differing major views have developed, as follows:

**First view - Biodiversity means taxonomy:** The taxonomic community has interpreted the Convention on Biological Diversity (CBD) as support and justification for increased scientific research in their specific field. Hence the apparent view that “biodiversity information” **equals** taxonomy, even though this scientific endeavour provides only a partial picture, and is only one of many classes of information important to the conservation of biodiversity. This has resulted in misleading names for institutions such as the Global Biodiversity Information Facility (GBIF), which in fact, concentrates on scientific issues in taxonomy (naming and relationships) and on specimen collections in museums and herbaria.

**Second view - Biodiversity information means species-related information:** This view of the scope extends from taxonomy and museum specimens to species observational data – e.g. distribution and populations of species. This implies information exchange on the occurrence and movement of species, their protection status, and natural habitat requirements.

**Third view - Biodiversity information has broad ecological scope:** Biodiversity information as implied by the Convention on Biological Diversity extends beyond species-centric data, to include biodiversity management and ecosystems information – that would include protected areas, habitats, ecosystem condition and monitoring, conservation strategies and methodologies, population dynamics, actions towards conservation (conventions, regulations, action plans), and so on. The Convention also encompasses information related to socio-economic considerations and concepts such as “equitable sharing of benefits” and “sustainable development”.

It should be noted that the North American Biodiversity Information Network (NABIN) has to date operated from a completely species-centric viewpoint, with a particular emphasis on linkage of museums regarding specimen data, similar to GBIF. This represents only a small proportion of the biodiversity information data for which improved access and harmonisation is needed in order to support decision-making.

The stated objectives for IABIN outlined above, however, clearly indicate that the practical scope of “biodiversity information” in the context of IABIN is meant to be the “broad ecological scope” described above. This would then encompass a number of major categories as follows:

*Taxonomic Information*

- Taxonomic reference systems and registries
- Species nomenclature and synonymy
- Species identification
- Museum, herbarium and botanic garden specimens

*Species Information*

- Species distribution
- Species population and dynamics
- Conservation status
- Threats
- Behaviour and habitats
- Species conservation activities (In-situ and ex-situ)
- Species “hot-spots”

*Protected areas*

- Location and distribution
- Purpose
- Protection status, international and national
- Management
- Relationship to species
- Ecosystem protection

*Ecosystems*

- Characteristics
- Distribution and dynamics
- Threats

- Status and condition
- Long term monitoring
- Relationship to species

*Responses*

- Conventions and treaties
- Legislation and regulation
- Strategies and policies
- Action plans and projects

These five major categories provide the core information required for effective decision-making on the range of topics identified in the IABIN objectives. In terms of circumscribing the scope of “biodiversity information”, it is important to note that this rather broad definition does NOT extend as widely as “environmental information” – i.e. does not encompass information on pollution loads, renewable and non-renewable resource extraction and utilisation, and many other factors normally considered part of State-of-the-Environment reporting.

Thus, for the purposes of this IABIN Support Project, the scope of “Biodiversity Information” is taken to include biological information related to the five categories above, but excludes pollution and resource extraction information. That is, IABIN is seen as a network for the exchange of biodiversity information (broadly defined) but not an Inter-American **Environmental** Information Network. This understanding forms the context in which methods, standards and good practices are examined and recommended below.

Another key point extracted from the stated objectives above, is that IABIN is to provide access to scientifically credible biodiversity information **currently existing** in individual institutions and agencies in the Americas. IASIN will therefore not be concerned with networks and methods that serve to collect raw data, but rather, those that share or exchange information between custodial institutions.

## CHAPTER 2 KEY INTERNATIONAL PROGRAMMES

### 2.1 Overview

A recent study of international information-sharing networks that provide support to European decision-makers (Rationalisation of International Nature Conservation Information Systems – RINCIS) identified some 289 information sources and networks in 10 major categories. A further 66 programmes or initiatives aimed at harmonising these networks also came to light. The following table shows the distribution by category of information networks identified in the RINCIS Study.

<b>Category</b>	<b>Networks</b>	<b>Harmonization Initiatives</b>
1 - Convention and Treaty Information Sources	21	17
2 - Information on Protected Sites	27	5
3 - Development projects and donor information	18	3
4 – Clearing-House Mechanisms & Integrated Exchange Networks	29	4
5 - Environmental Law Information	14	1
6 - Global and Regional Long Term Ecological Monitoring	24	5
7 - Taxonomic Reference Information	55	12
8 - Species Status Information	34	7
9 - Policy and Strategy Information	38	0
10 - European Nature Conservation Information	29	12

If one were to add the regional and sub-regional networks, and sources more particular to the Americas, these numbers would further increase. Some of these are of long standing, while many others have developed in recent years, responding to calls for increased information-sharing for decision-makers, for instance from Agenda 21, Chapter 41.

There is considerable evidence of overlap and lack of harmonisation amongst these existing networks. Many claims of these networks (“definitive”, “complete”, “authoritative”, “global” ...) are exaggerated, and reflect more the ultimate good intentions rather than the current reality. Many have no consistent guaranteed on-going source of funding. Further, in spite of the apparent proliferation of networks, significant information gaps exist as well. One particular area in which information is sparse and poorly co-ordinated is in the long term monitoring of ecosystems, and consequent indicators that would assist decision-makers to assess whether policies and actions are effective.

It is in this maelstrom of rapidly proliferating, overlapping and confusing biodiversity information networks that IABIN must find a useful niche that contributes non-redundantly to the whole, rather than adding confusion.

In the following sections, some of the most significant international programmes and initiatives with which IABIN should co-ordinate are profiled. Of the global systems, GBIF, UNEP.Net, UNEP-WCMC, The CBD Clearing House Mechanism, the Global Invasive Species Programme, The Millennium Biodiversity Assessment, BioNET, and Birdlife International, are the most relevant. In a regional context, NatureServe, CONABIO-REMIB, INBio (Costa Rica), CRIA (Brazil) and NABIN are of relevance.

In describing these programmes, official published documents and websites of the various agencies, personal communication and knowledge have been used. Some of the text is quoted verbatim from published sources without clear reference to the source, and it is hoped that the agencies will not object. Some is paraphrased, and some reflects synthesised interpretation of the author. The tone and level of apparent promotion and hyperbole therefore varies from paragraph to paragraph. The intent is to inform, so heavy editing to achieve a uniform style was judged to be unnecessary.

## 2.2 Key Global Programmes

### 2.2.1 Global Biodiversity Information Facility

The Global Biodiversity Information Facility (GBIF) has been established through an inter-governmental process, with the aim of increasing access to global biodiversity data, especially those that exist in museums and herbaria. The four priority work programme areas that have been identified for the first three-year phase are to:

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- create an Internet-based catalogue of known names of species;
- digitise data on species information in museums and herbaria;
- create interoperability of databases and search engines for accessing these data;
- build capacity in nations for the implementation of GBIF.

The stated mission of GBIF is to: “*Make the world’s biodiversity data freely and universally available via the Internet*”.

To accomplish its goals, GBIF's activities are organized around six thematic areas, as follows:

- Data Access and Database Interoperability
- Digitisation of Natural History Collections

- Electronic Catalogue of the Names of Known Organisms
- Outreach and Capacity Building
- SpeciesBank
- Digital Biodiversity Literature Resources

The purposes of these programmes are:

*“1) To facilitate the full use of biodiversity and other databases by establishing an information architecture that enables interoperability and facilitates data-mining*

*2) To facilitate the expansion of biodiversity knowledge by having legacy and newly acquired primary species occurrence data digitised and dynamically accessible.*

*3) To make integrated searching possible, as well as to facilitate the exploration and rapid expansion of biodiversity knowledge, by providing a complete, digital listing of the names of all known organisms*

*4) To bridge biodiversity information technology “digital divides” through training and capacity building to ensure that people in every country have access to and can easily and freely use the world’s biodiversity information*

*5) To provide, in real time, a complete compendium of knowledge about particular species, including name and synonyms, distribution, natural history, physiology, etc., drawn from online information sources*

*6) To enable Web access to digitised versions of the published literature extending back in time at least to Linnaeus’ publications of the 1750s, which are the basis of the system for scientific naming of organisms that is now in use.”*

GBIF works through “Participant Nodes” in national governments and regional organisations. In particular, it collaborates with the CBD, Species 2000, ITIS and UNEP-WCMC. The agreements on standards and tools for information exchange of taxonomic and specimen related data are of particular significance to IABIN.

## 2.2.2 UNEP.Net

The UNEP.Net partnership was initiated by the United Nations Environment Programme (UNEP) in September 2000, so as to bring together specialised scientific environment communities under one umbrella. The partnership is using the communities' varied and vast information resources to begin a new global process of developing integrated solutions to well-known environmental problems, while also highlighting emerging issues by using relevant components of their scientific information holdings. In doing this, UNEP is fulfilling a part of its mandate by bringing together

environmental information and data-providers, and facilitating and encouraging the exchange of information between them by using the most current Internet technologies.

There is a large volume of well-researched scientific environmental information fragmented in a wide variety of institutions and Websites, and this has made it difficult to filter for relevant information required for solving real-world environmental problems. The integrated solutions on the UNEP.Net site compile information from different scientific institutions to develop comprehensive solutions to specific environmental challenges. Environmental research and localised environmental solutions and best practices in many countries have also gone unrecognised, and three benefits that will be realised by this environment network are: provision of the forum for scientific technical peer review, provision of insights on environmental issues to the global community, and the exchange of ideas.

UNEP.Net is a decentralized and distributed system, which allows the integrated applications to query and generate reports from remote environmental databases and servers. This architecture enables the contributing publishers to continue to upgrade their systems and update their information holdings locally, with the benefits being realised directly by the partnership. In negotiating contributions with various partners, UNEP maintains respect for intellectual property, but encourages its partners to exchange and make their information and data available free of charge. The site also hosts independent specialised solutions and information/data of its publishers, developed to address specialised environmental issues and concerns. The dynamic and integrated applications can be accessed by specialised software and toolkits provided through the site, or directly with a Web browser, in which case less functionality is exposed to the user. For instance, downloading a copy of the freely distributed ArcExplorer and using it to overlay maps, etc. allows extensive manipulation of the map-based applications.

One of the major goals of UNEP.Net was to serve to integrate a number of distinct UNEP information services, notably Infoterra and the GRID facilities. Since its inception, UNEP.Net has been responsible for the establishment of a number of interactive thematic portals (for instance at GRID-Arendal) and provides a technology base for map-based server applications providing ecosystem and biodiversity information query and dissemination.

Plans for expansion of UNEP.Net are currently under review and its future status is uncertain.

### 2.2.3 UNEP-WCMC

UNEP-WCMC is the biodiversity assessment, policy support and information delivery centre for UNEP. This role is significant because UNEP is the leading global environmental authority: it sets the global environmental agenda and promotes coherent implementation of the environmental



dimensions of sustainable development within the United Nations system. Serving as an authoritative advocate for the global environment, UNEP is mandated by governments through its Governing Council. The Centre is specifically mandated:

- *to provide data and information of the highest quality and accessibility and interoperability, in co-operation with the Convention on Biological Diversity and consistent with the need to monitor progress towards meeting biodiversity-related objectives set by the Plan of Implementation of the World Summit on Sustainable Development;*
- *to establish a network of collaborating centres in developing countries to co-operate with the Centre and to assist them in undertaking relevant parts of their work programme; and*
- *to strengthen the World Database on Protected Areas, including linking it with other databases on biodiversity and ecology; establishment of a global consortium; and the strengthening of the relationship between the United Nations Environment Programme and the World Conservation Union on global protected area issues through a specific memorandum of understanding.*

In fulfilling its role, UNEP-WCMC relies on:

- its strong scientific base;
- powerful partnerships ‘on the ground’; and
- the analytical skills and experience to add value, by preparing and presenting policy-relevant data to appropriate audiences.

UNEP-WCMC has three key objectives:

- To analyse the state of global biodiversity, assess trends and provide early warning of emerging threats in support of international co-operation and action
- To support the development and implementation of international agreements and programmes that promote sustainable biodiversity conservation
- To support international action by providing expertise, tools, techniques and information for public awareness, education, capacity-building and cross-sectoral co-operation.

For almost twenty-five years, UNEP-WCMC has provided information on the living world, including ecosystems, protected areas, and threatened species. With collaborators and partners around the world, the Centre has built and published databases on the world’s most important ecosystems in tropical, temperate and polar regions, covering both land and seas. These databases contain information on more than 210,000 protected species and 100,000 protected areas. The

Centre's heritage has led to the legacy of a complex 'web of information systems' that now needs to be based on a more coherent and robust information and communications infrastructure to enable future growth as part of the United Nations, and the development of effective access for decision-makers worldwide.

The Centre has therefore launched Project Proteus, a major initiative to integrate and enhance the delivery capacity of the UNEP-WCMC information holdings. Proteus has as one of its principal objectives:

*"To create a comprehensive knowledgebase on global biodiversity, able to support national and international policy development and decision making."*

The Proteus approach includes:

- Linking and networking of existing databases internally and externally, rather than a disjointed collection of separate databases.
- Providing facilitated access to narrative style assessments and atlases on ecosystems, as well as the detailed quantitative information that lies behind them.
- Interoperability with partners and decentralisation through "federated" information systems – in a way that is transparent to users.
- A total integrated view of information holdings, with all-encompassing quality management.

In summary, the Proteus project seeks to develop a quality controlled *knowledge management system* that is:

- open and accessible (inter-operable with other systems);
- extendable and scalable;
- consistent and integrated;
- documented and accessible (to people); and
- sustainable over the long term.

One of the main work elements required is to integrate information management within UNEP-WCMC so as to increase access to information, ensure continued future access, and to increase cost-effectiveness of services. At the same time, it is necessary to build partnerships and external networks, enhance the means by which external sources of information can be efficiently accessed, and finally, to develop computer-based tools to provide access to information resources through the Internet.

Project Proteus is a joint venture with private sector and inter-governmental partners. It is currently in its second year and is scheduled for completion in 2007.

#### 2.2.4 The CBD Clearing House Mechanism

The stated mission of the Clearing-House Mechanism (CHM) of the Convention on Biological Diversity (CBD) is to:

- “- Promote and facilitate technical and scientific co-operation, within and between countries*
- Develop a global mechanism for exchanging and integrating information on biodiversity*
- Develop the necessary human and technological network”*

The Clearing-House is co-ordinated by the Executive Secretary of the CBD, and overseen and guided by an Informal Advisory Committee (IAC) set up by the Parties to the Convention. The committee works in a transparent and co-operative manner to promote awareness of the multiple needs and concerns facing various communities, countries and regions. In addition, a network of national focal points for the mechanism has been established to address matters relating to technical and scientific co-operation. The Parties have recently emphasised the need to strengthen the role of these focal points.

The Clearing-House Mechanism seeks to support the Convention's thematic and cross-cutting programmes of work by promoting co-operation in the following six key areas:

- tools for decision-making
- training and capacity-building
- research
- funding
- technology transfer
- repatriation of information.

The CHM's first priority was to ensure universal access to the Convention's official records. The texts of the Convention and the Cartagena Protocol on Biosafety, lists of signatories and Parties, and official reports and documents have been made available through the Convention's website, on CD-ROM and in paper form. Since then, the range of available information has been greatly expanded. Users can now readily access case studies, national and other reports, and initiatives and programmes such as the Global Taxonomy Initiative and those on sustainable tourism and

traditional knowledge. Technical and scientific expertise is promoted through a roster of government-nominated experts in relevant fields.

The Clearing-House also seeks to increase public awareness of Convention programmes and issues. It is establishing an Internet-based system to facilitate greater collaboration among countries through education and training projects, research co-operation, funding opportunities, access to and transfer of technology, and repatriation of information. Experts are being linked to facilitate joint work programmes. For example, the CHM works with the Global Invasive Species Programme (GISP) and with the Convention's scientific body to develop a joint scientific initiative on invasive alien species. The Clearing-House also strives to link the rich human resources of developing countries with cutting-edge scientific initiatives in developed countries, to create a mutually supportive and beneficial approach to problem solving.

Still another initiative is the creation of a section dedicated to the Biosafety Clearing-House to support the Cartagena Protocol. This will enable the CHM to facilitate the exchange of scientific, technical, environmental and legal information, and experience relating to living modified organisms (LMOs).

The secretariat of the Convention is promoting the Clearing House and its goals through workshops addressing the scientific and technical information needs of developing countries. These workshops give priority to issues identified by the countries themselves, such as:

- assessing national capacities for implementing the Convention
- improving access to new information technologies and expertise
- strengthening Public Education and Awareness.

Key characteristics of the CHM are:

- Compatible with different levels of national capacity
- Needs-driven
- Structurally decentralised
- Provides access to information
- Supports decision-making
- Has no vested interest in controlling the expertise or information
- Created for the mutual benefit of all participants.

An important associated development is the “CBD Controlled Vocabulary” that provides a consistent basis for searching across biodiversity information holdings.

### 2.2.5 Global Invasive Species Programme

The Global Invasive Species Programme (GISP) was established in 1997 to address global threats caused by Invasive Alien Species (IAS), and to provide support to the implementation of Article 8(h) of the Convention on Biological Diversity. Key partners during the initial GISP years, referred to as GISP Phase I, were the Scientific Committee on Problems of the Environment (SCOPE), CAB International (CABI) and the World Conservation Union (IUCN), partly funded by the United Nations Environment Programme (UNEP).

GISP Phase I largely relied on the voluntary contributions from a substantial group of scientists, lawyers, and managers from all parts of the world. Phase II was envisaged as a contributory Partnership Network of organisations and programmes from around the world, with an interest in IAS issues. Building on this partnership approach, GISP is continuously looking at innovative ways of improving co-operation with existing and new partners in the IAS world. The aim is to minimise, and where possible eliminate, any form of duplication, whilst maximising the effectiveness of joint programmes and promoting the sharing of best-practice information. GISP is in essence an enabling body, focusing on effective information exchange and networking mechanisms.

To this end, the GISP Secretariat has established a website which will become part of the Clearing House Mechanism, for all IAS information that relates to the Convention on Biological Diversity.

The GISP mission is *“to conserve biodiversity and sustain human livelihoods by minimising the spread and impact of invasive alien species.”*

To this end, GISP seeks to:

- improve the scientific basis for decision-making on invasive species
- develop capacities to employ early warning, rapid assessment and response systems
- enhance the ability to manage invasive species
- reduce the economic impacts of invasive species and control methods
- develop better risk assessment methods, and
- strengthen international agreements.

In addition, GISP strives to:

- develop public education about invasive species
- improve understanding of the ecology of invasive species
- examine legal and institutional frameworks for controlling invasive species
- develop new codes of conduct for the movement of species, and
- design new tools for quantifying the impact of invasive species.

Since 1997, the demand for GISP's productive, multi-disciplinary approach has grown dramatically, necessitating its evolution into a programme that openly engages the expertise and capacity of an even wider variety of stakeholders. At the March 2001 meeting of the Convention on Biological Diversity's (CBD) Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA), GISP released a Call to Action, inviting all stakeholders to become members of a "GISP Partnership Network". More than 50 governments, as well as numerous industries, scientific institutes, non-governmental organizations, and intergovernmental organisations have signed the Call to Action, making GISP a truly co-operative programme of global-scale.

The development of a Phase II Implementation Plan was initiated at the GISP Phase I Synthesis Conference at Cape Town, South Africa in September 2000. At the meeting, representatives from 42 governments, 17 inter-governmental institutions (including key Conventions, scientific institutes and development assistance agencies) and 17 national and non-governmental organizations provided input to establish priorities for Phase II. GISP presented these priorities at the sixth meeting of the CBD SBSTTA and incorporated feedback from the Parties and other bodies. The Phase II initiatives of GISP reflect the findings and recommendations of a four-year assessment, conducted in collaboration with major GISP stakeholders.

GISP is a component of DIVERSITAS, an international programme on biodiversity science. The GISP Secretariat is located in Cape Town, South Africa.

#### 2.2.6 The Millennium Ecosystem Assessment

The Millennium Ecosystem Assessment (MA) is an international work programme designed to meet the needs of decision-makers and the public for scientific information concerning the consequences of ecosystem change for human well being, and options for responding to those changes. The MA was launched by U.N. Secretary-General Kofi Annan in June 2001. It will help to meet the assessment needs of the CBD, Convention to Combat Desertification, Ramsar Convention, and Convention on Migratory Species, as well as the needs of other users in the private sector and civil society. If the MA proves to be useful to its stakeholders, it is anticipated

that an assessment process modelled on the MA will be repeated every 5–10 years, and that ecosystem assessments will be regularly conducted at national or sub-national scales.

The MA focuses on ecosystem services (the benefits people obtain from ecosystems), how changes in ecosystem services have affected human well-being, and how ecosystem changes may affect people in future decades. It also identifies response options that might be adopted at local, national, or global scales to improve ecosystem management, and thereby contribute to human well-being and poverty alleviation. The specific issues being addressed by the assessment have been defined through consultation with the MA users, as follows.

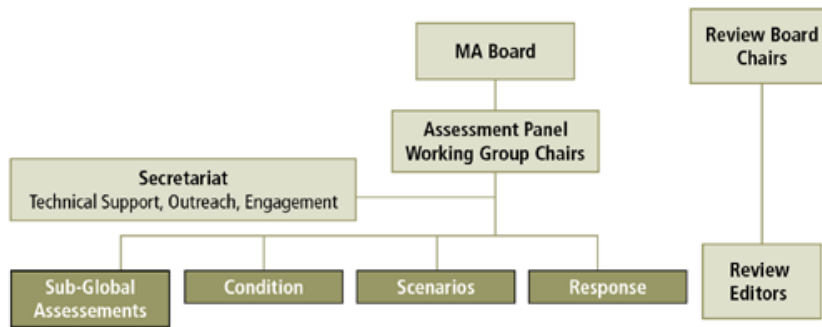
The MA will:

- Identify priorities for action;
- Provide tools for planning and management;
- Provide foresight concerning the consequences of decisions affecting ecosystems;
- Identify response options to achieve human development and sustainability goals;
- Help build individual and institutional capacity to undertake integrated ecosystem assessments and to act on their findings.

The MA synthesises information from the scientific literature, datasets, and scientific models, and makes use of knowledge held by the private sector, practitioners, local communities and indigenous peoples. All of the MA findings undergo rigorous peer review.

The MA is governed by a board comprised of representatives of international conventions, UN agencies, scientific organisations and leaders from the private sector, civil society, and indigenous organisations. A 13-member assessment panel of leading social and natural scientists oversees the technical work of the assessment, supported by a secretariat with offices in Europe, North America, Asia and Africa, and co-ordinated by UNEP. More than 500 authors are involved in four expert working groups, preparing the global assessment, and hundreds of others are undertaking more than a dozen sub-global assessments.

The organisational structure is shown below:



The MA is a “multiscale” assessment, consisting of interlinked assessments undertaken at local, watershed, national, regional and global scales. The MA sub-global assessments directly meet needs of decision-makers at the scale at which they are undertaken, strengthen the global findings with on-the-ground reality, and strengthen the local findings with global perspectives, data, and models. Sub-global assessments that have been approved or are being planned as components of the MA include: Arafura and Timor Seas; São Paulo, Brazil; Coastal British Columbia, Canada; the Caribbean Sea; the mountains of Central Asia; Salar de Atacama, Chile; Western China; Colombia; the Chirripo river basin, Costa Rica; the Sinai Peninsula, Egypt; the Hindu Kush-Himalayas; several regions within India; Indonesia; small islands of Papua New Guinea; the Vilcanota Region, Peru; Laguna Lake Basin, the Philippines; Portugal; the Atlay Sayan ecoregion, Russia; Saudi Arabia; Southern Africa (including Mozambique, South Africa, Zambia, and Zimbabwe); Sweden; Trinidad and Tobago; the Mekong wetlands, Viet Nam; and the tropical forest sites of the CGIAR ‘Alternatives to Slash and Burn’ Project. In addition, a pilot assessment has been completed in Norway.

The assessment will provide a number of output products. A report describing the approach and methods used in the MA – *Ecosystems and Human Well-being: A Framework for Assessment* – was scheduled for publication in 2003. The technical assessment reports produced by each of the four MA working groups will be published in 2005, along with short syntheses distilling the findings for ease of use by specific audiences. Each of the MA sub-global assessments will produce additional reports to meet the needs of their own audiences. All printed materials will be complemented by an information- and data-rich Internet site, capacity-building activities, briefings and workshops designed to help communicate the findings, tools and methods to the users.

Guided by the Conceptual Framework, four Working Groups are undertaking the scientific work of the Millennium Assessment. These Working Groups are co-chaired by natural and social scientists from developed and developing countries. These eight co-chairs and four other experts comprise the Assessment Panel, chaired by Angela Cropper and Harold Mooney. In addition to the four working groups, the MA secretariat co-ordinates a set of Engagement and Outreach activities



designed to ensure that the needs of the ‘users’ and stakeholders in the MA are reflected in the MA design, and that the findings of the MA reach their intended audience.

When completed, the MA will leave a legacy of a baseline database supporting three global assessments:

- The Global Conditions & Trends Assessment
- The Global Scenarios Assessment
- The Global Responses Assessment.

A number of sub-global assessments will also be completed.

### 2.2.7 BioNET-International

BioNET-International, The Global Network for Taxonomy, is dedicated to “*supporting sustainable development by helping developing countries to overcome the taxonomic impediment by becoming self-reliant in taxonomy, i.e. self-reliant in the skills, infrastructure and technologies needed to discover, identify, name, classify and to understand the relationships of all organisms.*”

BioNET supports the CBD Global Taxonomy Initiative, and is particularly focused on helping countries implement environmental conventions such as the International Plant Protection Convention. It operates through sub-regional “Locally Organised and Operated Partnerships” (LOOPs) of institutions in developing countries, that provide a cost-effective basis for strengthening the ability of countries to meet their taxonomic needs by sharing resources subregionally. LOOPs are Technical Co-operation Networks (as defined by UNDP), designed to be permanent government-owned structures, formed by intergovernmental agreement to address national and regional taxonomic priorities identified by their member countries.

Principal activities include:

- Training.
- Rehabilitation and resourcing of biological and literature collections.
- Information and communications.
- Introduction and application of appropriate new technologies.

Recently, activities in the Americas have been strengthened with the creation of a MESOAMERINET to join the existing ANDINONET (Andian countries) and CARINET (Caribbean)

## 2.2.8 BirdLife International

By focusing on birds, and the sites and habitats on which they depend, the BirdLife Partnership is working to improve the quality of life for birds, for other wildlife (biodiversity), and for people.

BirdLife's aims are to:

- *prevent the extinction of any bird species*
- *maintain and, where possible, improve the conservation status of all bird species*
- *conserve and, where appropriate, improve and enlarge sites and habitats important for birds*
- *help, through birds, to conserve biodiversity and to improve the quality of people's lives*
- *integrate bird conservation into sustaining people's livelihoods.*

BirdLife International is a global Partnership of conservation organisations that operate in over one hundred countries and territories worldwide. It has a strong Americas Division hosted in Quito, Ecuador, that co-ordinates and facilitates activities in the region by supporting its Partnership and promoting conservation action in those countries where it does not have an official representative. The regional network of Partners works to protect threatened species and their habitats, identify and protect the Important Bird Areas (IBAs), educate local communities and their leaders on the importance of birds, and promote the long-term sustainable use of unique ecosystems. According to BirdLife studies, around 4,500 of the world's 10,000 or so species of birds are found in the Americas. Roughly 650 are considered globally threatened and at risk of extinction by 2020. Seven of the 12 territories with the highest number of threatened species in the world are located in the Americas. The highest densities occur in Brazil (114 species) and Colombia (77 species).

The Americas Programme activities include:

- The Americas Sea Bird Conservation Program
- Important Bird Areas in the Americas
- Serra das Lontras Atlantic Forest Project, Bahia, Brazil
- The World Bird Festival in the Americas
- Black-breasted Puffleg Conservation, Ecuador.

BirdLife has developed a relational database, known as the World Bird Database (WBDB) that provides 120 tables covering in excess of 1,400 data fields. The data covers more than 10,000 species of birds, over 8,000 Important Bird Areas (IBAs) and 218 Endemic Bird Areas (EBAs). To these are added spatial data (e.g. on population distribution), multimedia files, other documents and links.

For each bird species, information held includes:

- characteristics
- range (country and island distribution)
- range (map)
- population numbers and trends
- occurrence in EBAs
- occurrence in biomes
- habitat use (including importance and seasonal use)
- threats (including timing, scope, severity and impact)
- targets for future action
- IUCN Red List Category
- images
- text accounts across a number of themes
- references.

Development of the database started in 1994, and data are being added continually. Users can search for detailed information on Species, Sites and EBAs, see examples of recent analyses, and download subsets of the database.

## **2.3 Key Regional Programmes**

### **2.3.1 NatureServe**

NatureServe is a non-profit conservation organisation that provides scientific information and tools to help guide effective conservation action. NatureServe represents an international network of biological inventories - known as natural heritage programs or conservation data centres - operating in all 50 U.S. states, Canada, Latin America and the Caribbean. They collect and manage detailed local information on plants, animals, and ecosystems and develop information products, data management tools, and conservation services to help meet local, national, and global conservation

needs. The scientific information about species and ecosystems developed by NatureServe is used by all sectors of society, including conservation groups, government agencies, corporations, academia, and the public to make informed decisions about managing natural resources.

Key activities include:

- Establishing scientific standards for biological inventory and biodiversity data management.
- Developing comprehensive and current databases on at-risk species and ecological communities.
- Designing advanced biodiversity data management systems in partnership with information technology leaders.
- Making biodiversity information available to the public through websites, publications, and custom services to clients and partners.
- Providing information products and conservation services to guide natural resource decision-making.

NatureServe is a derivative of The Nature Conservancy and their management of data about the status and distribution of species and ecosystems of conservation concern in the USA. The NatureServe network now includes 74 independent natural heritage programmes and conservation data centres throughout the Western Hemisphere. It is headquartered in Arlington, Virginia, with field offices in four U.S. locations and in Canada, and is funded by a membership organisation.

NatureServe Explorer is a regional North American initiative designed to allow access to a wide range of information on North American species, particularly those of conservation concern. It is based on a biodiversity data model that reflects a set of inventory and data management standards and protocols referred to as “natural heritage methodology”. Adhered to by each of the network members, this model and the associated standards and protocols are encapsulated in NatureServe's Biotics 4 software. Biotics 4 represents the eighth generation of data management software developed by NatureServe for use by network participants. Element-referenced objects incorporated in the data model include information that relates to a species or community's identity (including name and classification), status, general distribution, and life history characteristics. Spatial entities in the data model include the location and bounds of a species population or community stand, sites of ecological, scientific, or conservation interest, and areas under protective management.

### 2.3.2 CONABIO-REMIB

The Comision Nacional para el Conocimiento y Uso de la Biodiverstad (CONABIO) is a Mexican national Inter-Ministerial Commission mainly dedicated to:

- Maintaining a National System of Biodiversity Information (SNIB)
- Supporting projects and studies focused on the knowledge and sustainable use of biodiversity
- Advising governmental institutions and other sectors
- Undertaking special projects - sharing the knowledge of biological diversity
- Supporting international agreements related to biodiversity.

CONABIO sponsors and hosts the Red Mundial de Informacion sobre Biodiversidad (REMIB). In English, “The World Biodiversity Network”, REMIB is a computerised system of biological information that includes databases on curatorial, taxonomic, ecological, cartographic, bibliographic, ethno-biological information and catalogues on natural resources. It is based on an academic inter-institutional decentralised and international organisation, formed by research and higher education centres, both public and private, that possess both biological collections and data banks.

The purposes of REMIB are to:

- Promote the exchange of biotic information through an international network of databases, and to analyse and agree to joint policies on intellectual property, quality control and the formats for information exchange.
- Increase and improve accessibility and quality of this information, and maintain it up to date
- Offer basic knowledge of biodiversity to the public in general.

In its first stage, REMIB incorporated collections managed and funded by CONABIO. Subsequently, other international institutions demonstrated their interest in the Network, thus it changed its name to the World Biodiversity Information Network, incorporating information not only from Mexico, but also from an additional 146 countries. Throughout this time, most of the decisions on its implementation have been made on the basis of suggestions from academic personnel and curators, and members of REMIB. This network is governed by a Board of Directors and two Executive Committees.

REMIB functions with institutions that possess databases on biodiversity and natural resources, which act as nodes, and their researchers or experts are responsible for the information. The nodes

are the institutions where the biological scientific collections or other sources of original data on biodiversity are physically located, as well as the computer workstations where the exchange of data contained in this network operates. The person in charge of the node is the formal representative of the institution where the node is located, and his/her function is to hook up the institution with REMIB, and channel the relations of the Board of Directors and the Academic Committee with the institution and the curators.

The central node has its headquarters in CONABIO, which does not engage in scientific data collection, but has databases provided by experts, which pertain to the National System of Information on Biodiversity (SNIB). It is also in charge of establishing the rules and procedures for operating REMIB, for developing the programming tools that allow for the connection between nodes, and for providing the necessary technical support. In addition, it co-ordinates the participation of the institutional nodes and promotes the entry of new institutions as members of REMIB.

Many of the key institutions that are participating in IABIN are nodes in REMIB.

### 2.3.3 INBio (Costa Rica)

The Costa Rican Instituto Nacional Biodiversidad (INBio) is a non-governmental, non-profit, public interest organisation founded in 1989. Its mission is *“To promote an improved awareness of the value of biodiversity, to achieve its conservation, and to improve the quality of human life”*. It has five main programmes:

- National Inventory of Biodiversity
- Information Management
- Biodiversity Prospecting
- Biodiversity Social Outreach Program
- Conservation for Development

INBio is considered one of the prime leaders in the conservation of biodiversity in the region, with strategic alliances locally and internationally, with governmental, academic, private and investigative sectors.

Of particular relevance is the national inventory of biodiversity (and the associated information systems) and the parataxonomist program that is a model for public involvement in biodiversity.

The Institute co-operates locally and regionally, including agreements with University of Costa Rica, National University, School of Agriculture of the Tropical Humid Region (EARTH) and the Technological Institute of Costa Rica (ITCR), and foreign institutions such as University of Strathclyde Scotland, the Lausanne Institute, the Missouri Botanical Gardens, among many others, and collaborates with CONABIO, the CBD Clearing House Mechanism, GBIF, IABIN, SIMEBIO (Mesoamerican System of Biodiversity Information), and GBIF.

The Institute is considered a leader in developing public awareness of the importance of biodiversity and promoting “bioliteracy”.

The Institute, through its national inventory process, has gained considerable expertise in biodiversity information management. The core information management process of INBio is based on capturing, processing, assembling, packaging and disseminating information about Costa Rican biodiversity. Data is obtained from both museum collections and observations of specimens in the protected wild areas of Costa Rica as well as from other scientific institutions.

Each collected specimen is accompanied by a basic dataset indicating where, when, who and how was it collected. Information management processes involve integrated connected databases that include GIS mapping of ecosystems, and bar-code identification for specimens. The core of INBio’s information processing is the “ATTA” database that employs technology from ORACLE de Centroamérica and ESRI, and has developed methods and standards that may have wider application.

The ATTA information system includes a relational database comprising over two million records, each record corresponding to a unique specimen. ATTA currently includes modules for generation, reference, editing and analysis of information about taxonomy, geography, ecology and potential uses of Costa Rican plants, insects, molluscs, arachnids, fungi, and nematodes species. It is a flexible system that handles 22 taxonomic levels and includes a basic geographic information system that interfaces with standard computer tools such as ArcView, MS-Excel and the Internet to exchange information.

ATTA also includes several modules to display information from its databases that permit, for instance, national and international collaborators to use the Web to submit their species description to an electronic publication process. The resulting publication can include illustrations and distribution maps.

The “ECOMAPAS” system focuses on ecological data collection and mapping of the distribution of ecosystems and their vegetation in five Costa Rican conservation areas. This project, which

began in 1998, is executed as part of a wider initiative called “Development of Biodiversity Knowledge and Sustainable Use in Costa Rica”.

Both printed and digital maps of ecosystem distribution and their vegetation can be generated by ECOMAPAS and are intended to serve as tools, not only for conservation and sustainable use of the Conservation Areas, but also for efficient planning of the activities of the National Biodiversity Inventory. The maps illustrate ecosystem distribution, as well as vegetation cover and other biophysical parameters. This GIS map coverage also serves as a means to monitor biodiversity changes over time.

INBio’s information systems, and its experiences with multi-media environmental education for children and other outreach programmes, mean that INBio has a range of expertise and application software that may be of wider benefit throughout the region.

#### 2.3.4 CRIA (Brazil)

The Centrade Referencia en Informacao Ambiental (CRIA) is a Brazilian national agency dedicated to the dissemination of electronic information for the scientific and technological community. It provides biological information of environmental and industrial interest, with the intent of contributing to the conservation and sustainable use of Brazil's biological resources. It seeks to provide various sectors of society with high quality information as a basis for decision-making.

It has developed and is using distributed environmental information systems. For example, “SinBiota”, an Environmental Information System for the State of Sao Paulo, facilitates access to information about biodiversity by the scientific community, government and society in general, in order to contribute to the conservation and sustainable use of the state's biological diversity. All data generated by state projects are integrated, systemised and made available through SinBiota.

CRIA has also developed “The Virtual Institute of Biodiversity” which aims to contribute to implementation of the Convention on Biological Diversity within the State of Sao Paulo.

Although a national centre, CRIA is collaborating regionally, including working with the Biodiversity Research Centre of Kansas University on the development of “Lifemapper”. Financed by NSF (US National Science Foundation), this project is creating a large repository of geographic distribution models for approximately 100,000 species (including Brazilian species) that are part of the Species Analyst Network. This uses “DesktopGarp”, a software package for biodiversity and



ecology research that allows users to predict, model and analyse the geographic distribution of wild species.

The Centre is collaborating on the IABIN Invasives Information Network (I3N) Project that aims to develop a distributed and interoperable information network about the invasive species of the Americas. Within the scope of the implementation of IABIN, this tool for cataloguing information was developed, and is being tested by, organisations in 11 countries of the region (Argentina, Brazil, Bahamas, Chile, Dominican Republic, Ecuador, El Salvador, Guatemala, Jamaica, Mexico and Paraguay).

CRIA also collaborates with the Integrated Taxonomic Information System (ITIS), Species 2000 and the Global Biodiversity Information Facility (GBIF). It is significant that CRIA frequently organises and hosts regional symposia and workshops related to biodiversity information sharing, such as “Trends and Developments in Biodiversity Informatics Symposium: Key Innovations in Biodiversity Informatics” held in October 2002, and the forthcoming “Inter-American Workshop on Environmental Data Access” to be held on 3<sup>rd</sup> – 6th March 2004. The Workshop Programme indicates participation by IABIN and all the significant players in the region, as well as some global institutions such as GBIF. The papers and outcomes from this workshop should be a valuable resource to inform the B-IABIN project.

### 2.3.5 NABIN

The North American Biodiversity Information Network (NABIN) is described as “*a collaborative network of people and institutions involved in the management and use of biodiversity information*”. NABIN’s stated goal is “*to improve access and integration of biodiversity information in North America for better conservation decision-making*”

It has been partly supported by the trilateral (Canada, USA, Mexico) Centre for Environmental Co-ordination (CEC), and funded by multiple national sources. To date, it has particularly focused on technical standards and protocols for the exchange of information on museum specimens in North America. In this regard, it has been considered very successful and The Species Analyst (TSA), a tool for searching and geographically mapping specimens, is pointed to as a result – to the extent that in some quarters, NABIN and the TSA are considered synonymous. NABIN is identified as a partner to GBIF and collaborator with the CBD CHM.

The broader objectives of NABIN include:

- To encourage and facilitate the participation of institutions in developing standardised and harmonised means to access and integrate biodiversity information throughout North America;

- To increase the usefulness of biodiversity information for decision making, by identifying sources of biodiversity information and developing means of integrating species data with observational and monitoring data, and ecological information;
- To stimulate and catalyse projects and networks that provide for information integration and sharing across national, regional, and global biodiversity initiatives;
- To provide a forum for the exchange of scientific and technical knowledge and expertise related to the integration and inter-operability of biodiversity databases;
- To develop (and foster the development of) IT tools for improved information access, harmonisation and interoperability;
- To promote the free exchange of biodiversity information among private, public, and governmental entities.

Past work towards these objectives has included:

- NABIN seed-funding and facilitation has leveraged national and international funding for such initiatives as the Species Analyst (TSA), and ITIS;
- Outreach activities maintained NABIN's presence in the biodiversity information community, and encouraged experts to exchange practical experiences on information management;
- Recommendations on the development of a NABIN website for information exchange;
- Information management standards have been chosen for the web site: the FGDC-CSDGM international standards for maps, and the Dublin Core standard for non-mapping data;
- Considerations of NABIN-assisted unification of TSA and REMIB;
- The University of Kansas and associated researchers have developed applications in support of Climate Change scenarios that affect species' ranges and habitats, using TSA;
- Development (in part with NABIN seed-funding) of the Yellowstone to Yukon Conservation Initiative pilot application, which is now on-line at <<http://www.rockies.ca/birds>>. This application is becoming a North American model to respond to transboundary conservation issues.

Plans for 2003 included the development of a Web "Portal" for NABIN to provide a forum for information sharing and development of tools, and the expansion of the scope of NABIN to attack information exchange and harmonisation barriers beyond museum specimens – for instance to observational data on species of common conservation concern, and protected area data. Restructuring the NABIN Advisory Committee with refreshed Terms of Reference was also planned.

These plans have not yet materialised, and there is still no Web presence for NABIN, nor widely available documentation for the “Tools” and standards previously developed. Following a review, the co-ordinating support from the CEC seems to have been reduced, and so the future of NABIN and its relationship to IABIN is now unclear.

## CHAPTER 3 CONCLUDING REMARKS ON A NICHE FOR IABIN

### 3.1 Overlaps and Gaps

The 13 Global and regional programmes profiled in the previous chapter, all provide elements that support, or purport to support, the stated objectives of IABIN – that is, to facilitate the exchange of biodiversity information between institutions with a target audience of “decision-makers”. These existing programmes overlap in both geographic scope and subject content. UNEP.Net, the CBD Clearing House Mechanism, UNEP-WCMC and the Millennium Ecosystem Assessment all have a broad sweep of subject matter – covering all the main categories listed in Section 1.4, although with varying emphasis. For example, the CHM emphasises national responses and implementation measures, the MA provides broad assessments and measures of the state, UNEP-WCMC concentrates on protected areas and protected species, whilst UNEP.net is focused on map-based inventories and programme information. There is clear overlap between the species-related data maintained by UNEP-WCMC and the more focused database of BirdLife International, and between the general GBIF and more specialised BioNET, particularly with regard to taxonomy capacity building. These programmes co-operate and interlock in various ways, but cannot be said to be either rationalised or fully harmonised. The solid database structure established by BirdLife may form a base model for managing species data, and the GBIF standards and protocols for the exchange of taxonomic data are of key consideration.

The key players in the region offer several examples of database structures for species information (such as that used by NatureServe and the ATTA system of INBio), and good examples of regional and sub-regional networks, and should be adopted to the extent possible.

### 3.2 Principles for a Niche

One of the main purposes of the IABIN Support Project is to point towards an appropriate “niche” for IABIN. In defining this niche, IABIN should, as a matter of principle, seek to:

- Avoid duplication of existing global and regional exchange networks
- Avoid redundant development of database structures and tools
- Emphasise adoption of existing standards and protocols
- Emphasise linkage with, and augmentation of, existing networks and mechanisms.

It is clear that INBio, REMIB and CRIA (and even NABIN) involve overlapping sets of partners and participant countries. Many of the same institutions and individuals participate in meetings, and are members of advisory and governing bodies. Amongst these institutions, there has been significant investment and advances in database structures, and exchange formats and mechanisms that should be employed or advanced rather than re-invented. IABIN should seek to build on past

successes and established national and sub-regional models, and seek further convergence and integration. An emphasis should be placed on using available technology while improving the coverage and appropriateness of information for decision-making, rather than on advancing technology tools.

IABIN should consider how best to build on the current foundation through such methods as developing catalogues of useful technologies and compilation of case studies, in addition to data exchange facilitation. This will best be done by defining a small number of priority themes (as has been done in proposing Thematic Networks), rather than trying to advance on all fronts at once. Within these thematic areas needs should first be established – related to substantive issues and decisions that need to be addressed – followed by assessment of the principal obstacles to information exchange. Having identified the obstacles, whether technical, scientific or organisational, IABIN can then focus on solutions. The principal pitfall to avoid is to promote or facilitate information exchange for its own sake, rather than being directed at information exchange to address an important regional issue.

The more specific deliverables of this project will be directed at suggesting the boundaries of such a niche, and assessing and recommending the standards and methods currently successful and appropriate for the region, which can be incorporated to ensure that IABIN strengthens and integrates information exchange for decision-making in the region.

## **ANNEX 1 - Acronyms and Abbreviations**

B-IABIN	Building the Inter-American Biodiversity Information Network (Project)
BioNET	Biodiversity Network (of CABI)
CABI	Centre for Applied Biology International
CBD	Convention on Biological Diversity
CD-ROM	Compact Disk – Read Only Memory
CEC	Commission for Environmental Cooperation
CGIAR	Consultative Group of Institutes for Agricultural Biology
CHM	Clearing House mechanism
CI	Conservation International
CIs	Coordinating Institutions (of IABIN)
CONABIO	Comision Nacional para el Conocimiento y Uso de la Biodiverstad (Mexico)
COP	Conference of the Parties
CRIA	Centrade Referencia en Informacao Ambiental (Brazil)
EBA	Endemic Bird Areas
FGDC-CSDGM	Federal Geographic Data Committee (US) - Content Standard for Digital Geospatial Metadata
GBIF	Global Biodiversity Information Facility
GEF	Global Environment Facility
GIS	Geographic Information System
GISP	Global Invasive Species Programme
GRID	Global Resource Information Database (Project of UNEP)

IABIN	Inter-American Biodiversity Information Network
IAC	Informal Advisory Committee (to CHM)
IAS	Invasive Alien Species
IBA	Important Bird Areas
ITCR	Technological Institute of Costa Rica (trans. from Sp)
IEC	IABIN Executive Committee
IGO	Inter-Governmental Organisation
INBio	Instituto Nacional Biodiversidad (Costa Rica)
ITIS	Integrated Taxonomy Information System
IUCN	World Conservation Union
LMO	Living Modified Organism
LOOP	Locally Organised and Operated Partnerships (of BioNET)
MA	Millennium (ecosystem) Assessment
NGO	Non-Governmental Organisation
NABIN	North American Biodiversity Information Network
NK	Nippon Koei
NKUK	Nippon Koei United Kingdom
PDF	Project Development Fund (of GEF)
PIP	Project Implementation Plan (of GEF)
RINCIS	Rationalisation of Nature Conservation Information Systems (Project)
REMIB	Red Mundial de Informacion sobre Biodiversidad (Mexico)
SBSTTA	Subsidiary Body for Scientific technical and Technological Affairs (of CBD)
SCOPE	Scientific Committee on Problems of the Environment

SIMEBIO	Mesoamerican System of Biodiversity Information (trans. from Sp)
SNIB	Système Nationale de Información sobre Biodiversidad
TN	Thematic Network (of IABIN)
TSA	The Species Analyst
UNEP	United Nations Environment Programme
UNEP.Net	United Nations Environment Programme Network
UNDP	United Nations Development Programme
WBDB	World Bird Database
WCMC	World Conservation Monitoring Centre