

BRIM BULLETIN

Biodiversity Resources for Inventorying and Monitoring
<http://ice.ucdavis.edu/mab> <http://www.mabnet.org>

BioDiversity in BRIM

As of January 2000 -- 637 sites in 86 Countries

| GLOBAL SUMMARY: | Amphibian | Bird | Fish | Mammal | Reptile | Plants |
|--|-----------|--------|--------|--------|---------|--------|
| Total # Protected Areas Listing Taxon: | 358 | 572 | 238 | 536 | 388 | 157 |
| Total Records Entered | 3,356 | 85,827 | 7,803 | 16,340 | 6,194 | 88,193 |
| # Species in Database | 750 | 5,263 | 2,786 | 1,863 | 1,433 | 25,404 |
| # Described Species in the World | 4,810 | 9,940 | 25,157 | 4,630 | 7,855 | |
| % of Described Species in Database | 15 | 52 | 11 | 40 | 19 | |
| REGIONAL SUMMARIES: | | | | | | |
| (Selected Countries) Percentage of Total Country Species Reported in inventories of: | | | | | | |
| | Amphibian | Bird | Fish | Mammal | Reptile | |
| | % | % | % | % | % | |
| AFRICA: (7 Countries) | 40 | 46 | | 30 | 29 | |
| ASIA/OCEANIA : (6 Countries) | 23 | 39 | | 55 | 30 | |
| CENTRAL AMERICA: (4 Countries) | 32 | 47 | 34 | 35 | 33 | |
| EUROPE: (16 Countries) | 65 | 56 | | 65 | 52 | |
| NORTH AMERICA: (3 Countries) | 74 | 82 | | 73 | 66 | |
| SOUTH AMERICA: (7 Countries) | 42 | 35 | 28 | 43 | 37 | |

BRIM: The world's largest publicly accessible database of vascular flora and vertebrate fauna species inventories of protected areas

BRIM to UNESCO

We welcome the appointment of Dr. Peter Bridgewater as the new director of UNESCO's Division of Ecological Sciences and the head of UNESCO MAB. We particularly appreciate his efforts to implement the Memoranda of Understanding between the U.S. Department of State and UNESCO MAB to bring the Brim programs under the direct administration of

UNESCO MAB. We are confident that his vision and international leadership will significantly increase the utility of the BRIM program and encourage its use and expansion within the international scientific community. We look forward to increased close cooperation with Dr. Bridgewater and the UNESCO MAB staff.

Recent Developments

New Master Species Lists

In an effort to keep pace with evolving nomenclature standards, MABFlora and MABFauna are incorporating updated master species lists ("data dictionaries" of species names).

MABFlora for North America is adopting the latest PLANTS database (October, 1999) as its master species list and thereby eliminating the need for two (the U.S.D.A. PLANTS, which was derived from a 1996 database, and the Jepson Manual treatment of the vascular plants of California) master species lists to cover North America.

A MABFlora for Peru is under development and will be released in March, 2000. MABFlora for Peru is based upon the Flora of Peru provided by agreement with the Missouri Botanical Garden.

MABFauna: Amphibians: the world amphibian list has been replaced by a new master species list provided by agreement with Dr. Darrel Frost of the American Museum of Natural History in New York and is derived from the Amphibian Species of the World database (<http://research.amnh.org/herpetology/amphibia/index.html>). This list is current to December, 1999. Reptiles: the world reptile list has been updated to reflect the changes on the E.M.B.L. Reptile Database (<http://www.embl-heidelberg.de/~uetz/LivingReptiles.html>) and is current to December, 1999.

New BRIM CD 2000

The new BRIM MABFauna and MABFlora CD contains all of the programs and handbooks and is available while supplies last from U.S. MAB. The data in the programs are current as of January 2000. The programs include: MABFauna worldwide three editions with metadata in English, Spanish, and Russian; Observe, a log of field observation which is can be completely customized for monitoring programs, and regional MABFlora programs for US and Canada, Russia, East Africa, Europe and China.

Flora of China now Available

A check list of the Flora of China was provided by the Missouri Botanical Garden to serve as the master list for the MABFlora for China program. It can be downloaded from the web site at <http://www.usmab.org> or is on the CD 2000.

We would like to add as many regional Floras as possible. If you can provide an electronic copy of a well documented nomenclature for a region please contact Dr. Robert Meese at rjmeese@ucdavis.edu.

MABFlora Databases on the WEB

The MABFlora Vascular plant inventories database at the University of California, Davis is available at the MABNet website <http://ice.ucdavis.edu/mab/flora>. So far, flora lists have been posted for sites in North America, Europe, Russia, East Africa and China.

Asia/Oceania

Data from six Chinese biosphere reserves were provided by the Chinese Academy of Sciences. Dr. Ouyang Zhiyun of the Department of Systems Ecology of the Chinese Academy of Sciences is coordinating the entering of data from Chinese biosphere reserves and protected areas.

Vertebrate inventories from both Indonesia and Australia have significantly extended the scope of the database. Mr. Jim Muldoon, Area Director, Biodiversity Group Environment Australia was instrumental in adding data from our newest Australian sites, Pulu Keeling National Park, and Shoalwater Bay Ramsar Site significantly expanding our fish data, and bringing the total of Australian protected areas included to 16.

Indonesian National Parks were some of the first entries into MABFauna. Six sites are now entered giving a good start to coverage of that island nation. Thailand, India, and Pakistan have contributed vertebrate species lists from two protected sites each. Sri Lanka, The Philippines, and the Republic of Korea are also represented. New Zealand park data are expected in the spring.

The European Database is Growing

The dedication of German and Polish Biosphere Reserves to international cooperation is evident as 100% of German and Polish Biosphere Reserve managers sent in fauna and flora data to be entered in the database.

Three of four Austrian biosphere reserves are participating. All five vertebrate taxa for the Suisse biosphere reserve were provided by Dr. Flurin Filli, a member of the Suisse National Park staff. Dr. H. Kargiolake provided comprehensive species lists for the Greek biosphere reserve, Gorge of Samaria. Both Irish biosphere reserves have provided inventories of birds, fishes and mammals. Four of five Italian biosphere reserves are participating and have sent us data. The staff of the Netherlands biosphere reserve have provided species lists for four vertebrate taxa and plants. Ms. Angela Osoz Prim has made sure that the Reserva de la Biosfera de Urdaibai in Spain has entered all data for vertebrates and vascular plants.

Protected sites of the United Kingdom, the Czech Republic, Russia and Turkmenistan are well represented in the database, and Hungary, Romania, Ukraine, Denmark, Portugal, Sweden, and the Slovak Republic all also have fauna data included.

African Biodiversity

Data from Namibian National Parks and Game Reserves are a new addition to MABFauna. These species lists of amphibians, birds, mammals and reptiles were provided by Mike Griffin of the Ministry of Wildlife and Conservation of Namibia. Namibia's Naukluft National Park now holds the record for the highest number of reptiles listed from one site, 107.

Dr. Taïta Paulette of the Department of Agriculture and Environment has provided comprehensive lists of vertebrates and vascular plants for Burkina Faso's Foret Classee de la Mare Aux Hippopotames. Birds of South Africa are well represented with inventories from 24 Nature and Game reserves. Vertebrate and/or vascular plant inventories from National Parks in Benin, Uganda, the Central African Republic, Kenya, Sudan, Cote D'Ivoire, and Tanzania are now entered.

North America

Vertebrate inventories from the U.S. National Park Service sites have been added to the database which significantly expanded the amount of U.S. data.

Thanks to Peter L. Achuff Conservation Biologist at Jasper National Park in Alberta, vascular plant inventories from seven western Canadian National Parks were added to the database. Jamo Jalava of the Ontario Natural Heritage Program provided data from five Ontario Provincial Parks. Vertebrate and vascular plant inventories from several other Canadian protected areas have also been added bringing the total number of sites to 24.

Canada contributes our most northerly data, from Ellesmere Island National Park Reserve, at 82°N.

Latin America

Mexico is the star attraction of this region with data from ten biosphere reserves. Argentina, Bolivia, Brazil, Chile, Costa Rica, Ecuador, Guatemala, Honduras, Panama, Paraguay, Peru, and Uruguay all have participated in entry of data into the program.

Ecuador's Reserva de la Biosfera de Yasuni with 563, and Bolivia's Estacion Biologica Beni with 483 lead in the number of birds entered from any one site. Peru's Reserva del Manu holds the award for the most number of amphibians entered from one site, 57.

We look forward to the release of the MABFlora of Peru, it will enable significant additions to the database. U.C. Davis staff are also researching the development of a Flora for MesoAmerica.

LTER - "A new Low "

Dr. Bob Waide, Coordination Committee Chair of LTER (Long Term Ecological Research Network) worked hard to have data from the LTER sites included in MABFauna. Thanks to his efforts, the BRIM database now contains birds and mammals from 64°S, Palmer Station in Antarctica!

METADATA

Both MABFauna and MABFlora contain metadata, information about the information, for each species entry. As funds permit a new website will display the metadata for each species and permit incorporation of these elements into database search criteria. Here is a summary of the metadata fields and variables; MABFlora substitutes "Reproductive Status" for the Resident and the Breeding Status of MABFauna.

PRESENCE: species present in reserve; probably present in reserve; listed, but probably absent from reserve; extinct in reserve; records in reserve are anomalous or accidental; records in reserve are unreliable; other.

DOCUMENTATION: documented in a published scientific study; reliable written record; unconfirmed record; no written record, but obvious or common species; unknown.

DATE: date (year) of reference for species at reserve; citation of reference for species at reserve.

SPECIMEN: record of reference specimen in museum/herbarium/university; reference specimen held in reserve; other reference specimen; probably documented by specimen, location not recorded; not collected, or unknown.

SPECIAL STATUS: species of special concern to reserve; no special status; status unknown.

ORIGIN: known only from reserve; local endemic; widespread native; human introduction; natural invasion or colonization; non-native, method of introduction unknown; origin (native/non-native) unknown; other.

DISTRIBUTION INFORMATION: data on species' distribution throughout the reserve; in part of the reserve; little or no data on species' distribution in the reserve.

RESIDENT STATUS: permanent resident; spring migrant; summer migrant; summer resident; fall migrant; winter migrant; winter resident; multiple categories appropriate; irregular occurrence; vagrant or accidental; irruptive; resident status unknown; other.

BREEDING STATUS: confirmed consistent breeding; suspected consistent breeding; confirmed occasional breeding; suspected occasional breeding; confirmed irregular breeding; suspected irregular breeding; former

breeder, no recent breeding confirmed or suspected; non-reproducing population; breeding status unknown; other.

REPRODUCTIVE STATUS: (for flora): permanent reproducing population in reserve; occasional reproducing in reserve; waif or non-reproducing in reserve; reproductive status in reserve unknown; other.

ABUNDANCE: abundant; common (normally encountered); uncommon (occasionally encountered); rare (present, but frequently not encountered); casual or accidental (not normally present).

ABUNDANCE DATA: abundance data from regular monitoring; multiple, but irregular, census studies; one census; abundance data limited or nonexistent.

DATABASE: on computerized database with geographic coordinates; on computerized database, without geographic coordinates; not computerized, but organized, systematic manual fashion; information available, but not organized; database status uncertain; no database exists.

Repatriation of Data

We have encountered several instances of species inventories residing in libraries or even on Websites of universities of which the personnel in the protected area was unaware. Through its internet presence and free access to the MABFauna and MABFlora programs, BRIM can assist in repatriation of essential management information.

Completeness & Accuracy

Biological inventories of large protected areas are, by their very nature, necessarily incomplete since it is impossible for limited numbers of experts to survey more than a small percentage of the land and biota in the protected area. Funding for scientific research has been insufficient at most sites worldwide. As a result, many species lists are known to be incomplete and should be interpreted accordingly. The species lists in Flora/Fauna have been derived from a variety of sources, ranging from databases developed by museum specimens and professional scientists doing research, through guidebooks, checklists developed for visitors and personal knowledge of individual experts. While each species is associated with a reference, in

many protected areas, the original sources of the listings may not have been recorded and most probably represents a mix of obvious species, professional judgement and actual museum specimens and written records. Consequently, the accuracy of the lists varies from site to site. Throughout MABFauna/Flora, scientific names of the organisms have been updated to remove misspellings and other incorrect names and modified to current, widely-recognized nomenclature standards. In short, it is likely that the vast majority of the species on these lists can actually be found in the sites where they are listed, but mistakes certainly remain. However, absence of a species from a list does not necessarily mean that it does not occur in that protected area. Your help in improving the species lists is therefore vital and will be much appreciated!

BRIM: What's in a Name?

We are changing the name of BRIM from Biosphere Reserve Integrated Monitoring to **Biodiversity Resources for Inventorying and Monitoring**. This better represents the purpose and function of BRIM. The number of protected areas now far exceed UNESCO recognized biosphere reserves. The software programs and "tools" within BRIM of MABFauna, MABFlora, Observe as well as the BioMon program of the Smithsonian Institution together form an integrated package of Biodiversity Resources for Inventorying and Monitoring.

We anticipate biosphere reserves will continue to be the "leading edge" in BRIM. The world will look to those sites to launch and experiment with developing viable integrated monitoring programs. We especially acknowledge the leadership of the EuroMAB community in establishing this baseline BRIM program. We look forward to EuroMAB's support of international cooperative efforts to actually develop integrated monitoring programs on and among biosphere reserves.

Increasing e-linkages

Currently the BRIM database has received over 200,000 "hits" in some months. While this is gratifying, we need to constantly increase our contact and make it easier for students, scientists, administrators and policy

makers to find our data and to utilize this information for the betterment of our biosphere. We look forward to increased reciprocal linkages among UNESCO, BRIM, and the site home pages. If you know of programs or search engines which would be useful to implement the goals of MAB, please suggest that they establish a reciprocal web link with BRIM or let us know the URL.

Onward to Monitoring?

OBSERVE is packaged with MABFauna and MABFlora. OBSERVE is a related software program which is designed to hold species observation records, i.e., to answer the "who, what, when, where and why" kinds of questions relevant to a particular species observation. OBSERVE is highly user configurable, and may be tailored to individual needs. OBSERVE is especially designed to hold records of repeated observations, as in a population monitoring effort. New species entered into OBSERVE are automatically entered into MABFauna/MABFlora.

Copies of The EuroMAB directory, [ACCESS 1996. A Directory of Permanent Plots which Monitor Flora, Fauna...at 132 Biosphere Reserves in 27 Countries](#), are still available from the secretariats of the MAB programs in Europe. An immense amount of information on these permanent plots, e.g., from impact studies, structure and function of the data, scientific contact information etc., exists in this publication. These resources, plus the emerging programs such as the International Biodiversity Observation Year (IBOY) give hope that, soon, coordinated international monitoring efforts may become a reality. Here in the USA, the geophysical mapping community has established over 200,000 fixed geo-referenced points for political boundaries, monuments, property lines, design roads, etc. To my knowledge there are few, if any, comparable, agreed upon reference points established for the monitoring of the biological elements and processes of "the web of life." We hope that as new leadership takes over the BRIM program that it will build upon our baseline efforts and work to develop cooperative international ecological monitoring programs so that we can better understand the processes and roles of ...Man and the Biosphere.
Roger E. Soles, U.S. MAB

The Brim Bulletin is issued by the U.S. MAB Program in its role as the Secretariat on behalf of the BRIM project of EuroMab.

BRIM seeks to improve biodiversity inventory and monitoring through the promotion of standardized information management systems.

More information about BRIM can be found at <http://www.mabnet.org>. The MAB On-Line Data Query System of the species inventories collected to date can be viewed at <http://ice.ucdavis.edu/mab>

For further information on BRIM, MABFauna, MABFlora or the MABNet Database please contact:

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BRIM: Recognized as A Program of IBOY.

The BRIM project of MABFauna and MABFlora of protected areas has been approved as a participating program of the International Biodiversity Observation Year (IBOY) 2000-2002. IBOY is a program of "Diversitas" of the International Union of Biological Sciences.

IBOY 2001-2002 aims to focus global attention on the critical issues of biological diversity and its contribution to Earth system functioning through promoting biodiversity science. The BRIM project is recognized as one of the IBOY projects under the section, "What do we have and Where Is it?" Further information on other projects and sections of IBOY can be found at:

<http://www.iscu.org/Diversitas/IBOY/index.html>

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