

July-August 2002
Issue 6

Newsletter of the IBOY

DIVERSITAS – International Biodiversity Observation Year 2001-2002

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A Series of IBOY Publications for Scientists and Policymakers

IBOY is coordinating a series of publications that will highlight the new information on biodiversity generated by IBOY projects.

In conjunction with DIVERSITAS, we are coordinating a white paper for the UN World Summit on Sustainable Development, taking place in Johannesburg, South Africa, August – September 2002. It will form part of a series of white papers commissioned by the International Council for Science (ICSU). The paper is designed to provide delegates to the Summit with an overview of the role of biodiversity and biodiversity research in supporting

sustainable development. It will review recent advances and future needs in biodiversity research, and will feature the work and findings of many IBOY projects as illustrative case studies. The science writer commissioned for the paper, Fred Powledge, is in the process of interviewing IBOY project leaders. *BioScience*, the journal of the American Institute of Biological Sciences, is commissioning a feature article about IBOY, to be published at the end of the 'year' in December 2002. This article will review the overall goals and

-cont. pg 4

Evaluation and Recommendations for Biosphere Reserve Published

By Dr. R. J. Rao

The Madhya Pradesh Government of India has proposed an area of 3835 square kilometers, encompassing 10 forest ranges, as the Amarkantak Biosphere Reserve. The Achanakmar Sanctuary lies at the core of this region. In 1998 The Jiwaji University, Gwalio Madhya Pradesh was charged with evaluating the wildlife habitats, with special reference to conservation, in the proposed Biosphere Reserve. Their report has been published, and contains essential information and recommendations for management plans.

The objective of the evaluation was to assess species composition, distribution, ecological dynamics, status of wild populations and resource exploitation in



Clearing of the forest due to agricultural practices seen in the foreground.

the proposed Biosphere Reserve. The field assessments proved extremely useful in terms of recognizing the credibility for declaring the area as Biosphere Reserve. The Amarkantak Biosphere Reserve is rich in biodiversity because of the favorable climate and edaphic factors that abound in the area. The area provides an ideal habitat for wild animals. All the major wild animals

- cont pg. 4

EmbARKive!

By Harriet Nimmo

ARKive, the Wildscreen Trust's media repository for endangered species, is limbering up for its maiden voyage. Wildlife film, photography and audio recordings continue to flood into Bristol where, using the latest in technical wizardry, they are being digitally stored in the ARKive engine room. The collective imagery will serve as a global resource to help raise public awareness of conservation, whilst simultaneously laying down a permanent visual record of Earth's diminishing biodiversity.

Media capsules representing some 450 rare British species have now been completed and successfully uploaded into the digital vault. The first group of globally endangered species is not far behind - with the website launching early next year. In addition the UK government, recognising ARKive's value, has recently commissioned a chapter featuring CITES-listed corals, to aid custom officials and the public in the identification of protected coral species. It is hoped that this pilot coral project will lead to additional ARKive Chapters of CITES-listed species.



ARKive would not be possible without the generous support of the many and varied media contributors. Images have been bequeathed by all of the most famous names in natural history film-making including ABC Australia, the BBC, Discovery, Granada Wild, National Geographic and NHNZ. A similarly diverse range of commercial picture libraries have pledged their materials, whilst conservation organizations, research scientists and dedicated wildlife enthusiasts have all been equally central to the projects success. That said, there is always room for improvement. If you have access to footage or stills of endangered species, or know of important specialist or historical collections, please do not hesitate to contact the ARKive Project Manager, at the address below.

More information on ARKive
http://www.nrel.colostate.edu/projects/iboy/how_changing.html#arkive and <http://www.arkive.org>

Contact: Ms. Harriet Nimmo, ARKive, c/o Wildscreen Centre, PO Box 366, Deanery Yard, Bristol BS99 2HD, UK. Tel: (+44) 117 909 6303; Fax: (+44) 117 909 5000; Email: harriet.nimmo@wildscreen.org.uk

New Information on the Effect of Forest Replanting Techniques on Rainforest Fauna

By Dr. Heather Procter

In Australia, researchers from the Rainforest Cooperative Research Center are increasing understanding of how different methods of rainforest replanting effect fauna. The restoration of forest cover to cleared land is an important environmental goal. However, conservation is not the sole impetus for replanting. In Australia, previously agricultural land is being replanted with rainforest trees by agencies interested in conservation, small-scale cabinet timber plantations and large-scale monoculture logging. The unassisted return of abandoned pasture to forest is another way of regaining tree cover. 104 sites on the east coast of Queensland are being examined to assess the impacts of these different methods of replanting on fauna. The project compares relatively undisturbed sites (unlogged for at least 25 years, with closed canopies) with ecologically restored sites (5-15 years old), old plantations (36 – 67 old), young plantations (5-10 years old), cabinet timber plantations (5-8 years from planting), matrices of forest and pasture, and pasture. Emerging data indicate that the type of replanting impacts the diversity of fauna, and ecological processes.

Across the different planting types the researchers found a significant correlation between plant species richness and bird species richness (Figure 1). - cont pg. 3

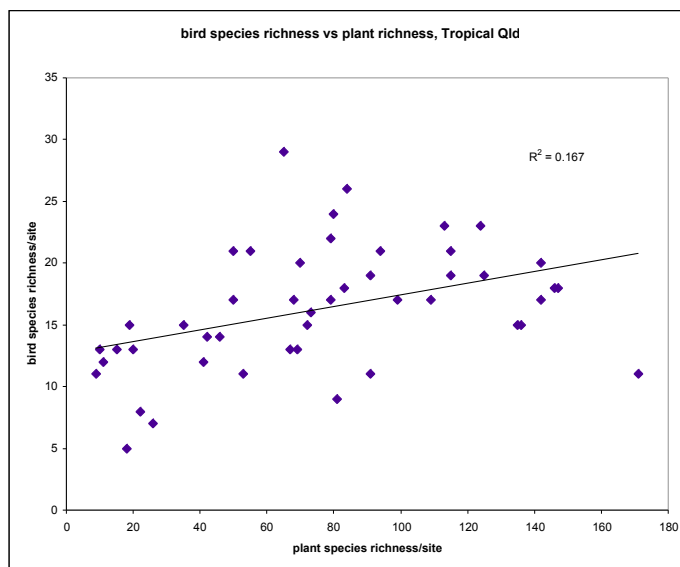


Figure 1 - Relationship between richness of plant species along a 100 m transect and richness of bird species using that transect (N = 47 sites from the Atherton Tablelands, Queensland) (p = 0.004) (preliminary results, June 2002).

Rainforest Replanting (cont)

Researchers also found differences in seed predation across the sites. This is a significant finding, since unusual recruitment of large-seeded trees in rainforest patches in New South Wales has been attributed to changes in seed predation do to the loss of large rodents from these patches. Emerging data from this study indicates that predation of large seeds by large rodents may indeed be reduced in many types of reforestation (Figure 2). An experiment was established to assess predation on different sizes of seeds, which is correlated to the size of seed-eating mammals present. The data

have not yet been statistically analyzed but it is apparent that predators (large rodents) of large nuts (brazil and macadamia) are absent from pasture and rare in cabinet timber plantations (CRRT). It also seems that ecological restorations and old plantations better match patterns of seed predation in undisturbed forests than the other replanting types.

More information on *Faunal Biodiversity Values of Restored Rainforest* http://www.nrel.colostate.edu/projects/iboy/australia_ap.html#faunal

Contact: Dr. Carla Catterall, Australian School of Environmental Studies, Griffith University, Nathan Campus, Nathan, Queensland 4111, Australia. Email: c.catterall@mailbox.gu.edu.au

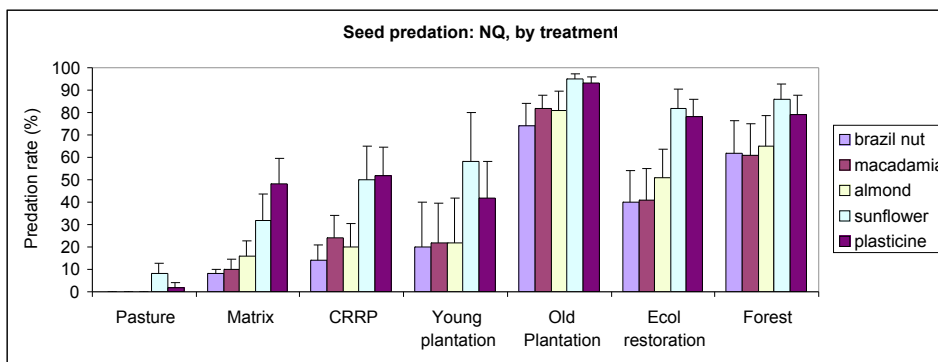


Figure 2 - Predation on seeds of different sizes set out in arrays in forest and pasture sites in the Atherton Tablelands, Queensland (note: plasticine 'seeds' were used to record tooth and beak marks) (preliminary results, June 2002).

Drifting Kelp Prevents 'Overgrazing' by Sea Urchins, Influencing the Biodiversity of Rocky Reefs

The rocky reefs of southwestern Australia remain virtually unstudied in comparison to their tropical counterparts. Surveys of rocky reefs along more than 400 km of the southwestern Australian coast between 1999 and 2001 are providing new information on the connectivity of marine ecosystems. The findings to be presented by Dr. Mat Vanderklift of the University of Western Australia, at the Annual Meeting of the Australian Marine Sciences Association, July 10 –12, 2002, Fremantle, Australia, show that densities of the purple sea urchin (*Heliocidaris erythrogramma*) and the species composition of macroalgae (seaweeds) on rocky reefs is influenced by kelp drifting from reefs several kilometers further offshore.

The diet of the purple sea urchin consists mainly of foliose brown macroalgae. High densities of the sea urchin (up to 20-30 m⁻²) generally create areas with little or no erect macroalgae, yet in south-western Australia such high densities appeared to have little effect on biomass or species composition of macroalgae. Vanderklift and his colleagues conducted a series of experiments to test the general hypothesis that *Heliocidaris* exerts no influence on the macroalgae assemblage. In one experiment they set up plots replicating four naturally occurring sea-urchin densities and found no detectable differences in the

biomass or species composition of macroalgae. In another experiment they compared large areas of reef from which urchins were removed or not, and found that the areas with sea urchins retained 400% more drift macroalgae, particularly, the kelp *Ecklonia radiata*, than the areas without sea urchins. *Ecklonia* does not grow in large stands on the reef studied, but is present as a large proportion of drift, originating from reefs several kilometers further offshore. The researchers speculate that drifting kelp is a major source of food for the purple sea urchins on the south-western Australian reefs, enabling high densities of urchins to be supported without the usual impacts on the local reef macroalgae abundance and composition.

More information for the IBOY Project *Invertebrate Diversity of Southwestern Australian Reefs* http://www.nrel.colostate.edu/projects/iboy/australia_ap.html#invertebrate

More information on the *Annual Meeting of the Australian Marine Sciences Association* <http://www.uq.edu.au/amsa/annconf.htm>

Contact: Dr. Mat Vanderklift, WA Coasts & Clean Seas Coordinator, Department for Planning and Infrastructure, 469 Wellington Street PERTH WA 6000, Australia. Tel: (+08) 9264 7835; Fax (+08) 9264 7566; Email: Mat.Vanderklift@Planning.wa.gov.au

Biosphere Reserve (cont)

of the region, like Tiger, Leopard, Bison, Sambhar, Bear, and Chital, etc., are found in the sanctuary. In addition, a large variety of birds and reptiles are also found. Major human activities in the area include mining, agriculture, tourism, etc. In the forest the major tribes are the Goar, Baiga, Kolas, Kanwar, Pinka, Ahir, and Pradhan. They depend mainly on the forest resources. Habitat destruction is the main factor threatening the wildlife in the unprotected ranges within the proposed ABR. The main problems in the area are over grazing by livestock, agriculture, mining, collection of non-timber forest products and medicinal plants.

The report recommends that the two states responsible for the management of the Reserve, Madhya Pradesh and Chattisgarh, should establish Amarkantak Biosphere Reserve (ABR) jointly in one step. The ultimate aim should be to have one functional biosphere reserve. The procedures recommended are: simultaneous establishment of biosphere reserves on each side of the state border; definition of the zoning of the area according to the general criteria for designation of biosphere reserves; identification of local and national partners and establishment of a working group to define the basis and identify key issues for co-operation; and signing of an official agreement between governmental authorities regarding the ABR. Among the measures recommended to make the ABR function effectively, priority should be given to:

- i) Preparation and adoption of a zoning plan for the whole area and implementation of the zoning by strict protection of core areas.

- ii) Delimitation of the buffer zones and coordinated objectives for the transition areas. This implies that the states concerned have a common understanding of the characteristics of each of the zones, and that similar management measures are in place for each zone.
- iii) Identification of potential funding sources for the work plan and joint or simultaneous application for these funds.
- iv) Efforts towards harmonized management structures on each side.
- v) Research studies should be conducted for better management of the ABR. Priority should be given to traditional ecological approaches, phytosociological studies and food-web research in the ABR.

The Government of India has given consent for declaring the Amarkantak Biosphere Reserve and the State of Madhya Pradesh has prepared a management plan. The State of Chattisgarh has requested some additional time, but it is hoped that management of the ABR will be in operation in two to three months.

More information on the IBOY Project *Evaluation of Wild Life Habitats in the Proposed Amarkantak Biosphere Reserve*
http://www.nrel.colostate.edu/projects/iboy/asia_ap.html#abr and
<http://www.amarkantak.com>

Contact: Dr. R.J. Rao, Conservation Biology Unit, School of Studies in Zoology, Jiwaji University, Gwalior, Madhya Pradesh 474 011, India. Tel: (+91) 751346782; Fax: (+91) 751341450; Email: jaganath@sancharnet.in

IBOY Publications (cont)

achievements of IBOY for networking biodiversity researchers and educators, and increasing communication of science-based biodiversity information. It will also report on the activities and findings of IBOY projects during 2001 and 2002. We will be working with the science writer, Fred Powledge, to feature a breadth of projects, and he plans to interview many project leaders about their work.

IBOY is also coordinating a special issue of *Organisms, Diversity and Evolution (ODE)*, a journal devoted to the understanding of organismal diversity that addresses an international audience. We are very grateful to the journal editors, Dr. J. Wolfgang Wagele and Dr. Gerhard Haszprunar, for their invitation to compile the issue. A call for submissions made in late 2001 has resulted in a set of articles that encompass a broad spectrum of biodiversity

research, including: discoveries of plants in Papua New Guinea and Bolivia and invertebrates in Cuban caves; diversity assessments of freshwater invertebrates and fish in South America and flora of central Europe; and integrative assessments, such as predictive assessments of relationships between above-surface and below-surface biodiversity and analysis of invertebrate assemblages to help monitor environmental change. We are delighted that the special issue will feature many papers on biodiversity research in megadiverse, developing countries. The manuscripts are due in August and we anticipate that the special issue will be published in late 2002 or early 2003.

More information: Gina Adams, Program Director, DIVERSITAS-IBOY, Natural Resource Ecology Laboratory, Colorado State University, Fort Collins, CO 80523-1499, USA. Tel: (+1) 970 491 1984, Fax: (+1) 970 491 3945, Email: gadams@nrel.colostate.edu

Publications and Presentations

July 10 – 12, 2002, Fremantle, Australia
Australian Marine Sciences Association Annual Meeting

Vanderklift, M. 2002. Do spatial subsidies mediate the effects of the purple sea-urchin *Heliocidaris erythrogramma* on subtidal reefs in south-western Australia?

See - Drifting kelp prevents 'overgrazing' by sea urchins and affects the biodiversity of rocky reefs, pg. 3

D'Antonio, C.M. and S. Kark. 2002. Impacts and extent of biotic invasions in terrestrial ecosystems. *Trends in Ecology and Evolution* 17(5): 201-204.

This paper reports the findings of the workshop on Impacts and Extent of Biotic Invasions in Terrestrial Ecosystems, which was held in Barcelona, Spain, from September 19-22, 2001.

More information in the project *Impacts of Biotic Invasions* see http://www.nrel.colostate.edu/projects/iboy/how_changing.html#invasions

Yaacob, Z., S. Mootan, and S. Yorath. 2002. Proceedings of the International Conference on In-situ and Ex-situ Biodiversity Conservation in the New Millennium. Yayasan Sabah/Innoprise Corporation and the Sabah Museum. 447pp.

This book describes developments in biodiversity and conservation in Sabah and Borneo. It contains 31 papers from a conference jointly organized by the project *Management of the Maliau Basin Conservation Area* and the Sabah Museum. The book increases availability of information otherwise not in print or only in 'grey' publications, such as internal reports. The book was launched by Chief Minister Datuk Ching Kah Kiat, who is also the Malaysian Minister of Tourism, Environment, Science and Technology, on January 25, 2002. It is now being distributed to all conference participants, university libraries, NGOs and relevant institutions in Malaysia, with the support of the Danish Cooperation for Environment and Development and the MacArthur Foundation. It will also be sold to

Contact: Dr. Mark Lonsdale, CSIRO Entomology & CRC for Weed Management Systems, GPO Box 1700, Canberra, ACT 2601, Australia. Tel: (+61) 2 6246 4360; Fax: (+61) 2 6246 4177; Email: mark.lonsdale@ento.csiro.au

interested parties, the proceeds of which will go to the Maliau Basin Conservation Fund to support research, training and education. To purchase a copy of the book please visit www.borneobooks.com

More information on the IBOY project *Management of the Maliau Basin Conservation Area* see http://www.nrel.colostate.edu/projects/iboy/asia_ap.html#maliau and http://www.ysnet.org.my/icsb/maliau/maliau_basin.htm

Contact: Dr. Hans Skotte Moeller, Maliau Basin Conservation Area Project, c/o Sabah Foundation and DANCED, Innoprise Corporation Sdn. Bhd., Sadong Jaya Complex Block D, Lot 6-10, Kota Kinabalu, Sabah, PO Box 11622, MY 88817, Malaysia. Tel: (+60) 88 224 100; Fax: (+60) 88 243 244; Email: hsmsabah@the.net.my

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Stuart Pimm
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Peter Raven
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Edward O. Wilson
 Harvard University

Farooq, S. and F. Azam. 2002. Production of Low Input and Stress Tolerant Wheat Germplasm through the use of Biodiversity Residing in Wild Relatives. *Hereditas* 136 (In Press).

This paper presents findings from studies in India to develop stress, especially drought and salinity, tolerant varieties of wheat using germplasm from wild relatives of wheat collected from degraded lands. The wheat produced through wide hybridization have done exceptionally well, giving higher yields compared to other commercial varieties under saline and drought conditions.

More information on the IBOY Project *Collection, Evaluation, Conservation and Sustainable Use of Agro-Biodiversity* http://www.nrel.colostate.edu/projects/iboy/asia_ap.html#collection_agro

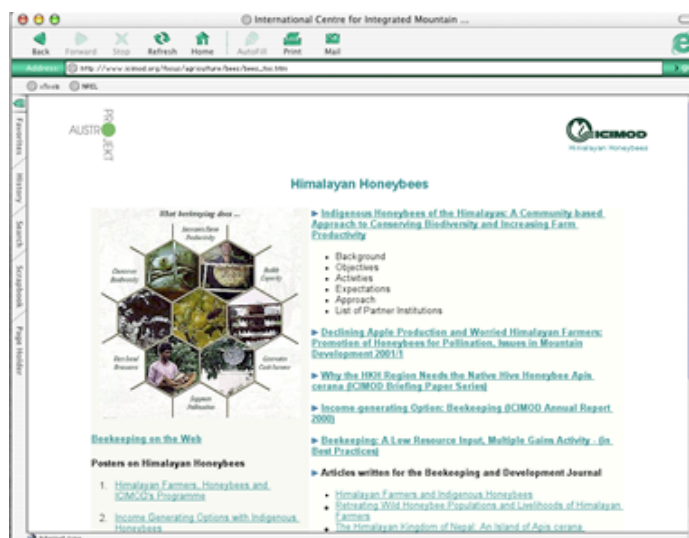
Contact: Dr. Shafqat Farooq, Nuclear Institute for Agriculture and Biology, PO Box 128, Jhang Road, Faisalabad, Pakistan. Tel: (+92) 41 654213; Fax: (+92) 41 654221 30; Email: asim6006@fsd.comsats.net.pk

Website for Conservation of Himalayan Honeybees Launched

The project *Indigenous Honeybees of the Himalayas: A community-based approach to conserving biodiversity and increasing farm productivity*, coordinated from the International Center for Integrated Mountain Development has launched its website at <http://www.icimod.org/ihbees>. The site contains downloadable briefing papers and information on best practices for managers, policy-makers and development workers; posters and other materials for educators; and research papers.

More information on the IBOY Project *Indigenous Honeybees of the Himalayas: A community-based approach to conserving biodiversity and increasing farm productivity* http://www.nrel.colostate.edu/projects/iboy/how_conserve.html#bees and <http://www.icimod.org/ihbees>

Contact: Dr. Farooq Ahmad, International Center for Integrated Mountain Development (ICIMOD), 4/80 Jawalakhel, PO Box 3226, Kathmandu, Nepal. Tel: (+977) 1 525313; Fax: (+977) 1 524509; Email: farooq@icimod.org.np



Meetings

**July 8-12, 2002. Pretoria, South Africa
SAFRINET to Host BioNET-International's Third Global Taxonomy Workshop (3GTW)**

SAFRINET is the southern African network of BioNET-International, working to build capacity for the provision of taxonomic services (i.e., the identification of organisms and the provision of information). It will host BioNET-International's Third Global Taxonomy Workshop, whose purpose is to develop a global plan of action for building taxonomic capacity, with the Secretariat of the Convention on Biological Diversity and other stakeholders.

More information on the 3GTW meeting is at www.bionet_intl.org

More information on the IBOY Project *SAFRINET* <http://www.nrel.colostate.edu/projects/iboy/whatandwhere.html#safrinet> and <http://safrinet.ecoport.org>

Contact: Dr. Connal Eardley, Plant Protection Research Institute, Private Bag X134, Pretoria, 0001, South Africa. Tel: (+27) 12 323 8540; Fax: (+27) 12 325 6998; Email: VREHCDE@PLANT5.AGRIC.ZA

August 20 – 24, 2002, Frankfurt, Germany

Meeting of the Millennium Assessment Conceptual Framework Authors and Assessment Panel

The authors of the first major product of the Millennium Assessment, Conceptual Framework Report, will meet to compile the first draft of the report. The Assessment Panel will meet to review progress on the Conceptual Report and on the other four assessments (sub global, condition of ecosystems, future scenarios of ecosystems and response options) of the Millennium Assessment. They will also review and make decisions regarding the publishing strategy, data and indicators work and data management.

More information on the IBOY Project *Millennium Ecosystem Assessment* <http://www.millenniumassessment.org> and http://www.nrel.colostate.edu/IBOY/goods_services.html#millennium

Contact: Ms. Valerie Thompson, Millennium Assessment Secretariat – WRI Office, 10 G Street N.E., Washington, DC 20002, USA. Tel: (+1) 202 729 7794, Fax: (+1) 202 729 7610; Email info@millenniumassessment.org

Press Radio and Television

Reunion de científicos y Periodistas, *El Mercurio*, June 17, 2002. Chilean Floristic Diversity Showcased at Meeting of Scientists and the Press

Chile's importance as a biodiversity hotspot was highlighted by Dr. Mary T. Kalin Arroyo, at a meeting designed to bring Chilean scientists and media together, organized by the Millennium Scientific Initiative, under the auspices of the Chilean Ministry of Planning. Dr. Arroyo presented findings from the IBOY project, 'Mediterranean Flora of Central Chile' demonstrating how the Andes has generated very special conditions for flora and presenting conservation proposals. The meeting and Dr. Arroyo's presentation were reported in Chile's leading newspaper *El Mercurio*. To read this article see

http://www.emol.com/Diario_ElMercurio/Modulos/Buscar/_portada/detalle_diario.asp?idnoticia=0117062002001A0070059

More Information on *Mediterranean Flora of Central Chile: Protection Status and Protection Needs* http://www.nrel.colostate.edu/projects/iboy/southa_ap.html#flora_chile

Contact: Dr. Mary T.K. Arroyo, Millennium Center for Advanced Studies in Ecology and Biodiversity Research, Faculty of Sciences, University of Chile, Casilla 653, Santiago, Chile. Tel: (+56) 2 276 0351; Fax: (+56) 2 271 5464; Email: southern@abello.dic.uchile.cl

***Underground wonders now just a click away* By Jeannine Klein, Bermuda Sun, June 14 2002.**

The website for the project *Exploration and Conservation of Anchialine Caves*, was the subject of an article in the *Bermuda Sun*. Dr. Tom Illiffe regularly leads research expeditions to Bermudan caves and the article describes the significance of the fauna, the goals of the project to survey the fauna and their conservation status, and the wealth of images and information that is contained in the website.

Read the article at <http://www.bermudasun.bm/cgilocal/edpull.pl?cat=01News&ord=10&ed=2002-06-14>

More information on the IBOY Project *Exploration and Conservation of Anchialine Cave Faunas* see <http://www.cavebiology.com/> and <http://www.nrel.colostate.edu/IBOY/whatandwhere.html#anchialine>

Contact: Dr. Thomas Illiffe, Dept. of Marine Biology, Texas A&M University at Galveston, Texas, 77553-1675, USA. Tel: (1) 409 740 4454; Fax: (1) 409 740 5001; Email: iliffet@tamug.tamu.edu
Dr. Geoffrey Boxshall, The Natural History Museum, Cromwell Road, London, SW7 5BD, United Kingdom. Tel: (44) 207 942 5749; Fax: (44) 207 942 5433; Email: G.Boxshall@nhm.ac.uk

Courses

July 22 -August 3, Florida, USA

Course on Molecular Studies of Marine Biodiversity

Dr. Jose Lopez of the Division of Biomedical Marine Research at Harbor Branch Oceanographic Institution, Florida, USA will lead a field and laboratory course Molecular Studies of Marine Biodiversity. Advanced college students from the USA and abroad are participating in the course. The first week of the course will provide a theoretical background on molecular biodiversity analyses and the second week will immerse students in biodiversity sampling from reefs and mangroves on the Indian River Lagoon and the Florida Keys, and in molecular analysis at the Keys Marine

Laboratory. Late registration for the course is still possible and interested parties should contact Jill Sunderland at (Sunderland@hboi.edu).

More information on *Molecular Studies on Marine Biodiversity* http://www.nrel.colostate.edu/projects/iboy/northa_ap.html#msmb and <http://www.geocities.com/RainForest/Vines/8169/>

Contact: Dr. Jose Lopez, Division of Biomedical Marine Research, harbor Branch Oceanographic Institution, 5600 US 1 North, Ft. Pierce, FL 34946, USA. Tel: (+1) 561 465 2400 x 478; Fax: (+1) 561 461 2221; Email: lopez@hboi.edu

From the Secretariat

America Explores Biodiversity

The first US *Biodiversity Month*, May 2002 was a great success. Tens of thousands of people participated in sixty-seven events across America. IBOY provided the stimulus for *Biodiversity Month* and offered support to local event organizers, through resources such as activity guides, media resources, and biodiversity fact sheets and posters. The events organized were as varied as biodiversity itself, but their common theme was to link scientists and the public in exploring and learning about biodiversity.

In this brief report it is impossible to do justice to the variety, creativity and quality of events, the excitement, and increased awareness of biodiversity that they generated. Some highlights from just a handful of the events are below but we encourage you to visit www.BiodiversityMonth.org to find out more.

Backyard BioBlitzes

Eighteen teams registered to conduct a *Backyard BioBlitz*, including elementary and high schools, college classes and 4 H groups, from New Hampshire to California. The aim of the *Backyard BioBlitz* was to undertake a rapid biodiversity assessment of a local area. Evaluating the number of species present in different taxonomic groups was more important than identifying individuals to species. Eleven groups reported their findings to us. Unfortunately two groups were rained out, but the nine remaining groups reported a staggering total of 789 species observations! Some highlights include:

- the Upper Midwest *BioBlitz*, organized by INSciTE, found the highest number of species - 278
- Orange Elementary School Science, IA, club spotted the first monarch butterfly of the season, later found to

be the most northerly reported in Iowa for that date!

- Members of Santa Clara, CA, 4H club and scientists rescued a baby deer that was stuck in a drainage pipe as an unexpected part of their *BioBlitz*!
- Schools from the HabitatNet group reported the change from spring to summer in permanent biodiversity plots from New Hampshire to Louisiana
- Almost half of the species found by Kittrell Science Club, IA, were insects
- Some of the 'coolest' species observed were:
 - a displaying Woodcock and Mayfly nymphs, by Westminster West School, VT
 - a wood frog and pileated woodpecker, by Beall High School, MD
 - a butlers garden snake, by the team from Oak Creek WI,
 - crayfish in an ephemeral stream, by students at Pennsylvania State University

We are delighted that so many educators found the *Backyard BioBlitz* useful and incorporated it into their curricula. Dr. Laura Guertin used the *Backyard BioBlitz* as a final exam for non-science majors studying 'Biodiversity and Earth History' at Pennsylvania State University. She said, "The exam was so much fun, for myself and the students! It really gave them a chance to take a close look at the environment around them and to think about what they've learned and how to apply that information.... This is something I definitely want to do again."

- cont pg. 9

Debra Smrcek of Academy of the Holy Cross School, MD, reports that, "We plan to make biodiversity our theme for the Science Department next year." Ken Baxter of Beall High School, MD found that the *BioBlitz* helped his students get a better idea of what biodiversity is all about and impacted their perception of its importance. He said, "[Biodiversity] is strangely enough a difficult concept for kids to grasp and the event helped. This year, more than ever, students responded to a question on the final about the greatest environmental problem facing us today as 'biodiversity.' That is a strong indicator of the success of the event and the focus it provided."

The *Backyard BioBlitzes* also provided a valuable opportunity for scientists, educators and members of the public to work together. Wendi Hill of the Santa Clara County, CA, 4H club told us, "It was absolutely wonderful to see a scientist working with a 5-year old, talking about what they had found and talking to them as if they were a colleague. I had incredible feedback. Everyone wanted to know when the next one will be." Fred Rose, of InSciTE, MN, is also planning next year's *Backyard BioBlitz* and said, "Next year we will get started earlier and work with the park boards to generate a bigger event."

All reporting *Backyard BioBlitz* teams will receive official certificates and prizes of hand lenses, generously donated by Indigo Instruments.

BioBlitzes

Large teams of professional scientists also explored local natural habitats during *Biodiversity Month* in *BioBlitzes*. For example, on May 31, in Mohegan Park, Norwich, CT, 119 scientists worked against the clock for an intensive 24 hours to document as many species as possible. They found a staggering 1,898 species. Their survey's findings included the tiny and rare Fairy Moth (*Adela ridingsella*) and a healthy population of a federally endangered species. The *BioBlitz* revealed the importance of temporal dynamics for biodiversity surveys; the *BioBlitz* was interrupted by an hour-long thunderstorm, after which several different species were found in abundance. Dr. Ellen Censky, Chair of *Biodiversity Month* and organizer of the Connecticut *BioBlitz*, and her colleagues performed a gargantuan task in organizing and promoting the event but it paid high dividends in terms of raising awareness of biodiversity. Over 2000 members of the public attended the event and it was featured in one of America's major newspapers, the Boston Herald.

Biodiversity Fairs and Festivals

Many museums and botanic gardens across the country held special events to celebrate *Biodiversity Month*, just a few of these are described below:

The Harvard Museum of Natural History, MA, held a

month long celebration of biodiversity in which approximately 13,000 people visited the museum. Activities included the creation of a new permanent exhibit on endangered plant species, new tours and scavenger hunts with a biodiversity focus, and 'creature features' every weekend with live animals. On May 9, Dr. Jim Hanken, Chair of the *Declining Amphibians Population Task Force*, presented a public lecture attended by 200 people "Declining Amphibians: On the Verge of an Environmental Catastrophe." The museum's *Biodiversity Month* celebrations were the cover story on the HMNH Program and Events Guide, which is mailed to thousands of members and friends of the museum.

On May 18, the Denver Museum of Nature and Science, CO, organized "Amoebas to Zebras: A Celebration of Biodiversity" with interactive displays by scientists and natural resource professionals from around the state. Hundreds of visitors were able to learn more about identifying, protecting and preserving biodiversity, and Debra Klich, coordinator of the event reported that, "The level of personal interaction between all of the presenters and our visitors during this festival was unsurpassed."

Also on May 18, The Peabody Museum of Natural History at Yale University, CT celebrated "The World in Your Backyard: Biodiversity Day at the Peabody." This biodiversity celebration focused on botany, the different ways in which plant diversity enriches our lives, and how we can conserve it. Plants known to attract wildlife were on display and for sale, and accompanying presentations and exhibits addressed landscaping for wildlife, using native species and their pollinating butterfly and moth species. Local organizations and professions that utilize biodiversity sustainably, set up interactive displays including the North East Organic Farmers Association, a beekeeper, and a master gardener. The "BioAction" lab that visits classrooms in the area provided hands on activities.

On May 18-19, the Missouri Botanical garden hosted a "Nature Days" at its Shaw Nature Reserve, MO, in which over 120 members of the public joined scientists to survey the biodiversity and take environmental measurements.

Public Lectures

Several organizations marked *Biodiversity Month* with public lectures on biodiversity issues ranging from bromeliads, to wetlands, to sustainable development. Just a few of these include:

On May 9, the *IBOY Biodiversity Month Lecture on Biodiversity Research for Sustainable Development* was held at the National Academy of Sciences in Washington, DC. Dr. Andrew Dobson, of Princeton University, Chaired the lecture. In the first presentation Dr. Jonathon

Margolis, Director, Office of Policy Coordination and Initiatives of the Bureau of Oceans and International Environmental Scientific Affairs, presented an overview of the US position on and preparations for the World Summit on Sustainable Development, to be held in Johannesburg, August-September 2002. Contributions of biodiversity to sustainable development were then discussed for Oceans by Dr. Andrew Rosenberg, University of New Hampshire, for agriculture by Dr. Richard Harwood, Michigan State University, and for land use by Dr. Jonathon Foley, University of Wisconsin.

On May 22 the National Natural History Museum at the Smithsonian Institution brought together leading biodiversity scientists to review progress over the last sixteen years, in the public lecture "1986 National Forum on Biodiversity: Current Perspectives". The lecture was opened by Dr. Thomas Lovejoy (Heinz Center for Science, Economics and the Environment). Dr. Fran Sharples of the National Academy of Sciences used the lecture to call for a third National Biodiversity Forum, to take place in 2006.

Other activities

Over 20 other groups chose different, but equally imaginative and effective, ways to mark *Biodiversity Month*, including field expeditions, restorations, classroom visits, films festivals, and the launch of webpages.

We are thrilled by the success of this first *Biodiversity Month*, and we believe it has enormous potential to become a strong force for increasing our nations' understanding of biodiversity and its connections to our society. *Biodiversity Month* can provide a strong galvanizing force for biodiversity education and outreach, but the findings from this first year also demonstrate that it has potential to yield important national data. Although, this year, no resources were available to compile the data from the many *BioBlitz* surveys in a scientifically rigorous way, the reports still captured an important national trend.

Surveys in the north reported delayed emergence of flowers and insects as a result of a cold wet spring, and surveys in the southwest reported the opposite and parched conditions as a result of the prolonged drought. In future years, we hope that *Biodiversity Month* can collaborate with national surveys and citizen science programs to enhance our ability to inventory and monitor America's biodiversity.

On May 9, the Ecological Society of America hosted a small ad hoc meeting in Washington DC to review the achievements of the first *Biodiversity Month* and explore options for continuing it. The meeting was attended by representatives from the Society of Conservation Biology, Ecological Society of America, World Wide Fund for Nature- US, The Smithsonian Institution, and IBOY. The unanimous consensus from the meeting was that we should try to continue *Biodiversity Month* beyond IBOY, with the aim of making it an annual event. IBOY is currently exploring funding possibilities for this.

We are enormously grateful to the many people that worked tirelessly to make *Biodiversity Month* possible. This includes in particular the members of the *Biodiversity Month* Steering Committee who met for the first time in November 2001 and spent the next few months working closely with the IBOY Secretariat and accepting our very tight deadlines to help develop and launch the month by May 1, 2002. We are enormously grateful to the US National Research Council Committee on DIVERSITAS, who sponsored the *Biodiversity Month* Steering Committee Meeting and provided ongoing advice and support. We thank also the many scientific and educational organizations that helped promote *Biodiversity Month* in their journals, bulletins, newsletters, list-serves and webpages, and the individuals that promoted *Biodiversity Month* by word of mouth. Finally, we are indebted to the organizers of local events whose enthusiasm and energy made *Biodiversity Month* a reality.

About IBOY



The IBOY is an initiative of DIVERSITAS. Intellectual sponsorship is provided by the International Union of Biological Sciences (IUBS), International Union of Microbiological Societies (IUMS), Scientific Committee on Problems of the Environment (SCOPE), and the United Nations Educational, Scientific and Cultural Organization (UNESCO). IBOY has been endorsed by the Sixteenth International Botanical Congress (IBC) and the Second World Conservation Congress of the World Conservation Union (IUCN). The Fifth Conference of the Parties to the Convention of Biological Diversity (CBD) invited parties to participate in the IBOY. Financial sponsorship of IBOY is provided by the US National Science Foundation (NSF) (under Grant No. DEB-0122141), the International Council for Science (ICSU), Center for Applied Biodiversity Science at Conservation International (CABS), the International Group of Funding Agencies (IGFA), DIVERSITAS, and two anonymous US foundations. We acknowledge the support of the US National Committee for DIVERSITAS and the Board on International Scientific Organizations of the National Research Council.

