

Nature Iraq

V o l u m e 4

N u m b e r 1

S u m m e r / 2 0 0 8

Iraq Drought 2008

Coming soon on
"Current Issues" on the new
Nature Iraq Website

In this Issue:

Public Lectures & Events.....	2
In the Field.....	2
Water Quality Index for Iraqi Marshlands.....	3
New Bird Guide for Iraqi Children.....	3
Troubled Tanjero.....	4
Peer Review of New Eden Plan.....	4
Environmental Challenges in Iraq Conference.....	5
Aquaculture in the Marshlands.....	5

Cover photo of Mawat Canyon by K. Ararat

ABOUT US

Nature Iraq is an Iraqi environmental, non-governmental organization registered in Iraq. Our mission is to protect and restore the environment of Iraq and the rich human heritage that it has fostered. We strive to achieve this mission through fulfillment of the following goals:

- > Improve the capacity of Iraq's institutions to protect its environment;
- > Develop a scientific database of environmental conditions and trends within Iraq;
- > Encourage environmental awareness and stewardship of Iraq's environment, and
- > Promote the sustainable use of Iraq's environment and resources.

Contacts:

Haithem Hassani: +964 7704615102
haithem@natureiraq.org

Nature Iraq Website:

www.natureiraq.org & www.edenagain.org

Nature-Iraq has offices in Sulaimani, Kurdistan Iraq and Baghdad & Chubayish, Iraq

Nature Iraq Mailing Address

P.O. Box 144652
Amman 11814 Jordan

Public Lectures/Events (past & future):

Azzam Alwash, the CEO of Nature Iraq participated in a symposium organized by the **American Museum of Natural History** on the 22nd of March in New York City, as part of the activities organized by the museum in celebration of World Water Day. The symposium can be viewed on the following web link. <http://symposia.cbc.amnh.org/wwd-2008/wwd-2008-webcast.html>.

On April 3rd, a public lecture titled "**The Marshes of Mesopotamia: Dried, Restored, Will it Last?**" was given by Dr. Alwash at UCLA's Center for Near Eastern Studies. <http://www.international.ucla.edu/cnes/events/showevent.asp?eventid=6585>. The lecture is to be webcasted on the center's web site in the near future.

Nature Iraq Photo Exhibit – Check our website for dates and locations.

New Eden Project Coordination Meeting & Ramsar Meeting on Hawizeh Marsh, Sulaimani, Kurdistan, Iraq, 27-1 May 2008

Nature Iraq affiliates to Birdlife International, May 2008

NI sponsors Iraqi scientists to attend conference in Poland, **Ecohydrological Processes & Sustainable Floodplain Management** to present a paper on "*Species composition, ecological indices and trophic pyramid of fish assemblage of the restored Al-Hawizeh Marsh, Southern Iraq*", May 2008

Key Biodiversity Areas & Habitat Summer Surveys (South & Kurdistan), May thru June, 2008

Mesopotamian Marsh National Park Meeting, Sulaimani, 1st week of July

Ramsar Committee Meeting on the Huwizeh Management Plan, Hosted by Nature Iraq in Sulaimani, September TBA

IUCN Congress, Barcelona, Spain, 4-14 October, 2008

International Congress: Documenting, Analyzing, and Managing Biodiversity in the Middle East, Amman, Jordan, 20-23 October, 2008

In the Field

by A. Bachmann

Two major initiatives of Nature Iraq over the past and current year are the KBA project to assess the site of biological diversity throughout southern Iraq & Kurdistan, northern Iraq and the Habitat Project designed to map and monitor the marshland habitats of southern Iraq. The 2007 year represented a longer field season as the KBA project was extended, at the request of

the Ministry of Environment, to Kurdistan, Iraq's three northern governorates of Sulaimani, Erbil & Duhok. A new field method was tested under the Habitat project called the Habitat Hector Area (HHA), which is designed ultimately to work with low-elevation photography to provide a mapping tool for defining the different habitat components within the Marshland ecosystems. This method was also applied in Kurdistan, Northern Iraq and also more information was collected on plant coverage at sites. Currently, the habitat project is focused on the Central Marshes and will be providing information important for the development of a park management plan for a proposed National Park in the area. But these types of habitat assessments are important for characterizing and delineating sites of high biological diversity or sites important to threatened or endangered species.



Muhammed Saed M. Noori of Kurdish Ministry of Environment, Haider Ibrahem of the Ministry of Environment, & Ibrahem M. Abd of Nature Iraq in the Kalar Fish Market, Photo by A. B.



Abbas Abd Sfeyh of the Ministry of Environment (left) & Ali Mohammed Mahir of Nature Iraq (right) collecting plankton samples from the Diyala River near Darbendikhan Reservoir, Photo by KBA Team

Continued on Page 4



Whiskered Tern in Southern Marshes,
Photo by O Fadhel.

Water Quality Index for Iraqi Marshlands

by Ibrahem Abed & Ghasak Sabah

One of the new projects adopted by Nature Iraq is the Water Quality Index (WQI). The WQI reduces technical water quality information down to a simple description of a site's water quality. This will allow us to share the wealth of water quality monitoring information with the public and to assist resource managers to prioritize and remedy water quality problems. Nature Iraq has been building a database for over three years on the water quality and biodiversity of the Iraqi marshlands. But with the WQI we can offer an evaluation tool that helps decision-makers understand the current ecological status of marshes.

The index is intended to reflect the overall and on-going condition of the water. It will not usually show the effects of spills and other random and transient events, unless these are relatively frequent or long-lasting. Indeed, the index is designed to show the type of water quality that would be at risk from a random accident such as a spill.

For these and other related activities, Nature Iraq kept teams busy in the field for nearly six months in 2007 and when not in the field, staff were busy writing more comprehensive reports of their field observations and lab analysis.

The WQI results in a number ranging from 1 to 100; a higher number is indicative of better water quality. Scores are determined based on the values of physical and chemical parameters for a site, such as temperature, pH, fecal coliform bacteria, dissolved oxygen, total suspended sediments, turbidity, total phosphorus, and total nitrogen. Constituent scores are then combined and results aggregated over time to produce a single yearly score for each sample station. Of course, no single number can express the entire story of these complex ecosystems, but a WQI can provide a general understanding of how the marshes (or other ecosystems) are doing.

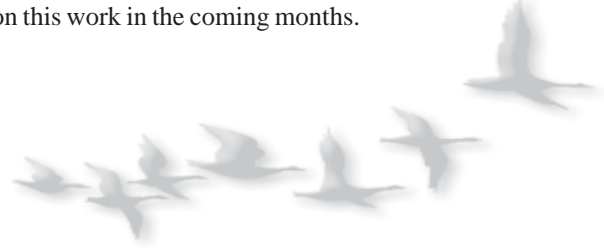
As part of this work, Nature Iraq welcomed new faces to the projects. These included Dr. Mukhtar Khamees, a professor with the School of Science & Technology for Women, University of Baghdad who conducted mammals and reptile surveys on the KBA Project; Korsh Ararat, a graduate of the University of Sulaimani, who assisted with bird surveys in Kurdistan; Saman Abdul Rahman, a botanist from the College of Agriculture, University of Sulaimani, who conducted botany surveys in Kurdistan and several representatives from the Kurdistan Ministry of Environment.

There are many ways to develop WQI calculations. One of the more developed models was one developed by the Canadian Council of Ministers of the Environment (CCME). This water quality index doesn't give any weighted numbers but treats the values of parameters in mathematical ways to ensure that all parameters contribute adequately in the final number of the index. This model is flexible, allowing you to choose the parameters you want to use and standardize them according to your objectives and area of study.

Many of the reports for 2007 remain in the draft stage as Nature Iraq has amassed an extensive database of information which must be vetted and assessed to make concrete a proper assessment of what has been learned in the last three years of work. In the coming months, Nature Iraq will be submitting reports on water quality, plants and habitat assessments, an updated list proposed of IBAs and in some cases KBAs, as well as bird and fish status throughout southern Iraq and Kurdistan, Northern Iraq.

In addition Indices of biotic integrity (IBI) are a related tool to measure the water quality of the ecosystem by looking at a site's biota. For example, plankton is ideal for offshore water quality monitoring, because it is inexpensive to collect and highly sensitive to changes in ecosystems. Nature Iraq is developing IBI's for plankton, macro-invertebrates and fish.

The IWQ and IBIs will be useful tools for ranking the suitability of water for use by humans, agriculture, recreation, livestock, aquatic life and wildlife and it is hoped that they will provide Iraqi scientists and decision-makers a method for prioritizing research and taking restoration actions in the Marshlands. Both the Ministries of Higher Education and Water Resources are participating in this project with Nature Iraq and a meeting will be organized in Sulaimani on this work in the coming months.



New Bird Guide for Iraqi Children

A new book for children on the birds of Iraq was released to the public at two events, one in Erbil on 30th January and one in Baghdad on 24th of April. Supported by the Italian Ministry of Environment, Land & Sea in partnership with Nature Iraq and the Iraqi Ministry of Environment and with additional financial support from the Kurdish Ministry of Environment, the book is written in both Arabic and Kurdish. It contains over 30 common bird species found in wetlands, deserts, towns, and mountains and provides a good introduction to both the science and hobby of birding for children. It provides some important information on the migration of species and when these birds are likely to be seen in Iraq.

The book was based on a similar version developed by the Royal Society for the Conservation of Nature in Jordan and was updated for Iraq by Omar Fadhel, Mudhafar Salim & Korsh Ararat with some assistance by Birdlife Middle East. The books will be given for distribution to the Ministries of Education (Kurdistan & Baghdad) and Environment (Kurdistan & Baghdad) and are also available from Nature Iraq.



Troubled Tanjero

by A. Bachmann

The Tanjero is a small river that has its source in the foothills and mountains around Sulaimani. As it travels down to become one of the main sources of water to Darbendikhan Lake and eventually the Diyala River, it faces many problems and impacts. The water is heavily utilized for agriculture in the area and thus contains the runoff of agricultural pesticides and fertilizers. It is also, for much of its course affected by gravel mining operations that operate heavy machinery in and along the gravel beds of the river, causing many adverse physical affects to the stream's biota and riparian zone. But one of the largest impacts on the river is that it carries almost the entire sewage load of the city of Sulaimani, a town of over one and one-half million people. This sewage is not treated in any way before entering the river and by the time the river leaves the city it is essentially an open sewer.



Sewage Outfall in Sarchinar, Sulaimani, Photo By A. Bachmann

Nature Iraq conducted a six-day training exercise on the Tanjero at the end of March with participation by the Water Resources Study Center, a part of the Iraqi Ministry of Water Resources. Our goal was to cross-train lab and field staff and test the new lab facilities at the Twin Rivers Institute (American University of Iraq, Sulaimani). But we also wanted to



Ali Sadik Al Zubaidi of Nature Iraq demonstrating the Surber Sampler for collecting benthic invertebrate, Photo by A. Bachmann

collect some useful information of the state of the river. Currently there is a potential project to build an irrigation dam on the Tanjero at a place called Qara Ali near Arbat (about half way down the river from Sulaimani to Darbendikhan Reservoir). An Italian Firm is writing an Environmental Impact Assessment (EIA) for the project with Nature Iraq being responsible for collecting the necessary environmental data. These EIAs are required in most major development projects

in the west and the region but are relatively new to Iraq. They are useful documents to properly assess, prepare and/or mitigate for the often adverse changes that large engineering projects can have on the environment. They can also expose existing environmental problems that have been overlooked or ignored. Six sample points were selected along the Tanjero and its two main headwater sources. Physical and chemical water samples were taken as well as surveys for benthic invertebrates and fish. Sediment sampling for heavy metals was also done and tests for E. coli and bacteria were done to better characterize the sewage pollution. The analysis clearly showed extensive pollution impact to the river particularly after the river has passed the city. Other small rivers, carrying somewhat cleaner water, feed into the Tanjero as it approaches Darbendikhan Reservoir, but the waters of the Tanjero are still in an unhealthy state as they enter the lake. The full report from the Tanjero Project is still under development but will be available from Nature Iraq in the coming weeks.

Peer Review of New Eden Plan for Marsh Management and Monitoring and Other Habitat/Water Initiatives

In September 2007, Nature Iraq established an independent Peer Review Panel to assess its New Eden Again Plan for the hydrological management and monitoring of the hydrological components of the southern marshes including Hawizeh Marsh. The Panel consisted of several of the World's leading experts on wetland ecology, large basin wetland restoration programs, and Ramsar site planning. The Panel members were drawn from the United States of America, Bostwana and the People's Republic of China.

The Peer Review Panel recommended ten actions, including:

1. The New Eden Plan, as an ambitious and generally well-focused wetland restoration program, should be supported by the Iraqi government and the international community.
2. A rigorous, yet strategic program of monitoring of hydrology, water quality, biota, and soils/sediments for the restored marshes should be established.
3. A joint water commission for the Euphrates and Tigris Rivers encompassing Governments of Turkey, Syria, Iran and Iraq should be established.
4. Efforts should be made in Iraq to establish a joint water commission that includes the relevant government departments and other stakeholders where national water management issues can be dealt with in a holistic way.
5. In the management of natural resources in the marshes, efforts should be made to involve local users/stakeholders.
6. A review of all water chemical analytical procedures, especially for phosphorus and nitrogen, should be done for the monitoring effort and a comparison (inter-calibration) with one or several established laboratories should be done as well.
7. A one-year water sampling program should be implemented with emphasis on nitrogen and phosphorus.
8. Data on cadmium concentrations are high and of concern. New samples should be taken and analyzed by an established laboratory with experience with this element. If confirmed, remedial actions and damage control must be implemented. Release of the water into the Gulf should be avoided. The use of part of the wetland complex as a deposit is in this context preferable until the source has been identified and remedial actions taken.
9. All efforts should be made to investigate old studies.
10. This plan of the Marshlands restoration is generally robust and it is recommended that it be implemented promptly. The Panel felt it will provide the following benefits:

- ◆ flood control, drought moderation, and provision of microclimate;
- ◆ nutrient management (e.g. N, P, S); and pollution control (heavy metals, organic contaminants, etc.) for the downstream Gulf;
- ◆ soil management including erosion prevention, soil salinity and soil quality;
- ◆ habitat regeneration for fish, birds and

- other wildlife;
- ◆improvement in overall sustainability and quality of life in the area; and
- ◆carbon sequestration.

The Panel also commented on the management of the proposed National Park in Central Marsh in Iraq and its relationship to the Hawizeh Marsh Ramsar Site. They noted that the proposed National Park and the Hawizeh Ramsar Site should have their objectives focused on solving six current and major problems of these wetland areas today: (1) loss of biodiversity; (2) salinization of water and soil; (3) pollution; (4) overgrazing; (5) illegal fishing and hunting; and (6) spreading of settlements without appropriate land planning.

Environmental Challenges in Iraq: Defining the Issues and Seeking for Solutions: Conference

by Haider Sahib

“The actions should be as big as the challenges.” With this in mind the participants in a conference that took place on 11-12 January of this year in Sulaimani, Kurdistan, Northern Iraq started their meeting. Decision-makers and experts from the ministries of environment (MoE), agriculture (MoA), water resources (MoWR) marsh affairs (MMA), and universities from all over Iraq accepted the joint invitation issued by the Ministry of Higher Education and Scientific Research (MoHER) and the American University in Iraq/ Sulaimani (AUIS). The importance of the event was enhanced by the participation of the Minister of Environment and four consultants for the Iraqi Prime Minister.



H.E. Narmin Othman, Minister of Environment and other participants in the conference on Environmental Challenges in Iraq

The agenda included 16 lectures organized under five general topics: Water Resources, Restoration of the Marshes, Biodiversity, Desertification, and General Issues. Both the lecturers and the participants showed their ideas, suggestions and concerns about these topics throughout the discussions that followed each presentation. In general, the lectures covered critical challenges such as the Turkish dams on Euphrates and Tigris and the geological threats in Mosul dam as well as issues related to pollution threats, biodiversity status, and environmental management needs.

The event was closed with announcement of the recommendations of the conference which represented ideas and suggestions that were gathered from the participants throughout the sessions. The recommendations tried to cover all the important issues that face the different aspects of the environment in Iraq (Water resources, Resotration and rehabilitation of the marsh environment, biodiversity & desertification).

In addition, a number of recommendations were adopted that are dealing with topics such as providing support to the environmental institutions and capacity building in the fields of environmental management, modern technologies and information technologies. Initiatives for establishing structures such as a higher committee for supervising the national program for the protection of the environment and national fund for environmental protection were recommended.

Finally, the recommendations included a separate items for a number of proposals for different kinds of projects that concern with many aspects of developing the status of the environment in Iraq. As an important requisite for better results of the conference, a committee was selected to follow up the recommendations to put them in an integrated program that is to be submitted to the government for approval and support. The committee, which is headed by the Technical Deputy of MoHER, has delivered an official copy of the recommendations to the office of the PM and all Iraqi universities. The committee has already started receiving official feedbacks from the universities that included both support and suggestions for better investment of the results of the conference. Continuous follow up is needed to define the actions that should be taken in the near future.

Aquaculture in the Marshlands

by Ibrahem Abed

Aquaculture is an important income-generating activity in Iraq but is not always conducting in an efficient or environmental friendly manner. Most of these activities in Iraq have consisted of establishing fish ponds fed from the closest available water resource, which drained to the same source.



Finished net pen awaiting fingerlings, Photo by Ibrahem M. Abd

Such activities have implications for land ownership; pollution from oil and fuel used in generators which are used to pump a supply of fresh water and re-oxygenate the pond, and also high cost of construction. Under the New Eden Project, we introduced a new pilot project to promote the development of aquaculture in Iraq in a more sustainable and efficient manner.

The use of floating fish cages is a common practice in aquaculture and may be suitable for some southern water bodies of Iraq. Floating cages for fish culture can be constructed from a variety of materials and in practically every shape and size imaginable. Basic cage construction requires that cage materials be strong, durable, and non-toxic. The cage must retain the fish yet allow maximum circulation of water through the cage. Adequate water circulation is critical to the health of the fish by bringing oxygen into the cage, and removing wastes from the cage.

The current project aims to supports social-economic development in marsh areas and is also linked to the development and protection of the core area of a National Park project in the Central Marshes by promoting aquaculture as one of the sustainable solutions for supporting marsh dwellers in the area of the park. Related activities that can be developed to service aquaculture in the region include fish hatcheries and fish processing plants. With proper planning and sensitivity to the local environment, these types of projects can protect the fisheries resources of Iraq and promote the sustainable use of the National Park area.

During the period of January to April, Nature Iraq designed and constructed a fish cage located near the town of Abu Subat on the Euphrates River. Site was select according to the international criteria published by FAO and other agencies. The dimensions of the cage are 12 by 6 by 3 meters built of PVC piping filled with foam for floatation. Nets resistant to UV were then attached to this framework to retain the fish and fingerlings have been stocked in the pens. They will take several months to mature before they can be harvested and marketed.