# **The National Collections of Natural History**

## **Tel Aviv University**

Annual Report 2002/2003



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#### Introduction

The present report details the research, conservation, and public activities of the faculty and staff of the National Collections of Natural History at Tel Aviv University during the 2002/2003 academic year. It summarizes activities and outlines future plans, progress and prospects.

The National Collections of Natural History at Tel Aviv University provide an active, updated, and comprehensive record of the biodiversity of our region and a significant research infrastructure for scientists worldwide. The collections comprise millions of specimens spanning the Kingdoms Animalia, Plantae, and Fungi, from arthropods to early human fossils, from deep sea Mediterranean fishes to marine algae, from higher vertebrates to stony and soft corals of the Red Sea, from crustaceans to lichens.

In the past few years we have been actively promoting the establishment of a National Museum of Natural History at Tel Aviv University. The Israel Academy of Sciences and Humanities has recommended that our collections be declared national collections and that a National Museum of Natural History be established. The Academic Planning Committee of Tel Aviv University has placed a building for the collections at its highest priority, and the Board of Directors of Tel Aviv University has decided to build a proper facility to house the collections and collections-based research. The Campus Planning Committee has approved our building program and allocated a lot for construction adjacent to the I. Meier Segals Zoological Garden and the botanic gardens at Tel Aviv University. The Chair of the Board of Governors of Tel Aviv University, Mr. Michael Steinhardt, has generously pledged 5 million dollars for this project (pending matching funds and the active continuation and development of our child-oriented programs), and the Israel Academy of Sciences and Humanities has recommended that the Planning and Grants

Committee of Israel's Higher Education provide matching funds as well as maintenance costs and curator positions. We are currently awaiting their word and hope that we will soon have good news to share with our colleagues and friends. Our collections are dedicated to the conservation of biological diversity through collecting, collection maintenance, research, teaching, and education. We are part of an active research university, the largest in Israel, and our mission focuses on collection development and scientific research. However, we take pride also in our involvement in nature and environmental conservation. The Society for the Protection of Nature in Israel (SPNI), Israel's leading environmental NGO (Non-Government Organization), was co-founded by the faculty of Tel Aviv University (Prof. Amotz Zahavi and Prof. Heinrich Mendelssohn), and the lobbying for conservation laws and the establishment of the Nature Reserves Authority (now INPA, the Israel Nature and Parks Authority) was also a result of the hard work of TAU faculty, in particular the influence of our founding father, the late Prof. Heinrich Mendelssohn, who sadly passed away this academic year at the age of 92 (see Obituary p. 20). We work hard to follow in their footsteps by continuing the tradition of contributing to society based on our expertise in the study of nature, as well as in other numerous and significant ways.

The Faculty of Life Sciences at Tel Aviv University has a longstanding tradition of service to the Israeli school system. In fact, the core of what was to become Tel Aviv University was the Biological-Pedagogical Institute founded over 60 years ago by Joshua Margolin who deeply believed that the study of natural history is the best possible tool to reacquaint Jews from the Diaspora with the ancient homeland. To this day we continue with this tradition, and Tel Aviv University has established "Nature Campus" - our education and public programs whose activities take advantage of Tel Aviv University's unique research infrastructure, the I. Meier Segals Zoological Garden, the botanic gardens, and the research laboratories, and open the treasures of the National

Collections of Natural History at Tel Aviv University to the public eye. More significantly, "Nature Campus" uses the unique knowledge and expertise of the faculty members of Tel Aviv University in the fields of ecology, biogeography, evolution, paleontology, conservation biology, behavior, and physiology for developing public and educational activities.

Ours is a multidisciplinary project, enjoining members of the George S. Wise Faculty of Life Science (Departments of Zoology and Plant Sciences and Institute of Nature Conservation Research) and the Sackler Faculty of Medicine (Department of Anatomy and Anthropology); the Archeozoology and Archeobotany Laboratories of the Lester and Sally Entin Faculty of Humanities (the Sonia and Marco Nadler Institute of Archeology) are scheduled to join us when the new collections and research building is constructed. Curators are active in university level teaching and research. Many members are also very active in conservation and monitoring projects and in boards of public and environmental organizations. Here we share with you the progress made in the past academic year 2002/2003.

#### Museum staff

Tamar Dayan Department of Zoology Director

## **Curators** (TAU faculty members)

Yoram Yom-Tov Department of Zoology Higher vertebrates

Yehuda Benayahu Department of Zoology Invertebrates

Amnon Freidberg Department of Zoology Entomology

Yehoshua Kugler (emeritus) Department of Zoology Entomology

Menachem GorenDepartment of ZoologyFishesLev Fishelson (emeritus)Department of ZoologyFishes

Dan Graur Department of Zoology Molecular systematics

Dorothee Huchon Department of Zoology Molecular systematics

Baruch Arensburg (emeritus) Department of Anatomy Physical

and Anthropology Athropology

Yoel Rak Department of Anatomy Physical and Anthropology Athropology

Israel Hershkowitz Department of Anatomy Physical

and Anthropology Athropology

Nissan Binyamini (emeritus) Department of Plant Fungi

Sciences

Margalith Galun (emeritus) Department of Plant Lichens

Sciences

Jacob Garty Department of Plant Lichens

Sciences

Ya'akov Lipkin Department of Plant Algae

Sciences

### **Curators** (TAU faculty members; new immigrants in various absorption

schemes)

Vladimir Chikatunov Department of Zoology Coleoptera Vassily Kravchenko Department of Zoology Lepidoptera Sergei Zonstein Department of Zoology Arachnidae Andy Lerer Department of Zoology Diptera Yuri Katz Department of Zoology

Paleontology

Olga Orlov-Labkovsky Department of Zoology Micropaleontology

#### **Associate curators** (faculty members)

Yossi Loya Department of Zoology Stony corals Micha Ilan Department of Zoology **Sponges** Bella Galil Israel Oceanographic & Crustaceans

Limnological Research - Haifa

**Danny Simon** Department of Zoology Formicidae

Ilan Yarom Hazeva Research & Diptera

Development

Eli Geffen Institute for Nature Molecular

> Conservation Research systematics

Ofer Mokady Institute for Nature Molecular

> Conservation Research systematics

#### **Technical assistants** (assistant curators, collection managers, technicians,

taxidermist)

Revital Ben-David-Zaslow, PhD

Henk Mienis

Chemda Zigman

Reuven Landsman

Tova Feller

Alex Shlagman

Ermin Ionescu, PhD

Leonid Friedman

Igor Gavrilov

Tzilla Shariv

Tirza Stern

Vered Eshed, PhD

## "Nature Campus"

Yael Gavrieli, PhD Director

Annat Feldman Content Development

Rakefet Vaisberg Public Programs Coordinator

Adiv Gal Project Coordinator

Roee Gutman Project Coordinator

## **International Scientific Advisory Board**

Prof. Vicki Buchsbaum, Pearse Inst. of Marine Sciences, University of California, Santa Cruz, USA

Prof. Jared Diamond, Department of Physiology, University of California, Los Angeles Medical School, Los Angeles, CA, USA

Prof. Paul Ehrlich, Department of Biological Sciences, Stanford University, Stanford, CA, USA

Prof. Daphne G. Fautin, Ecology and Evolutionary Biology, Invertebrate Zoology University of Kansas, USA

Lord Robert May, Department of Zoology, Oxford University, Oxford, UK

Prof. Peter Raven, Missouri Botanical Garden, St. Louis, MO, USA

Prof. Miriam Rothschild, Ashton Wold, Peterburough, UK

Prof. Daniel Simberloff, Department of Ecology and Evolutionary Biology, University of Tennessee, Knoxville, TN, USA

Prof. Edward Wilson, Museum of Comparative Zoology, Harvard University, Cambridge, MA, USA

In the summer of 2002 we lost a member of our International Scientific Advisory Board, Dr. Stephen J. Gould of Harvard University. A mentor, a colleague, and a friend, he will be missed by all of us.

## "Nature Campus" - public and educational activities

Nature Campus is a relatively new university project aimed at promoting scientific, environmental, and nature conservation education, based on the unique teaching infrastructure of TAU - The Natural History Collections, the I. Meier Segals Garden for Zoological Research, the Botanic Gardens and the teaching laboratories of the Faculty of Life Sciences; and on the academic human resources - researchers, technicians and, most importantly, graduate students.

Nature Campus is currently celebrating its third year of operation, and has stood by its promise to lead Biodiversity education in Israel. Through educating the next generation of Earth's guardians about the Web of Life, Nature Campus desires to play a key role in safeguarding the natural world. Being affiliated with the University, it bridges between the scientific community and the general public. Nature Campus visitors-primarily childrenare able to gain an understanding and respect for the living world, an insight into the complexities of nature, and knowledge of ecological patterns and processes. Nature Campus also focuses on educating the public towards sustainable use of the environment. In so doing it joins many natural history museums worldwide in their initiative to spearhead the global effort to protect the environment, by communicating environmental sciences and conservation biology to the public, and by influencing attitudes in society and among policy makers.

Nature Campus activities make available to the public, and in particular to schoolchildren, the treasures of the Natural History Collections, as well as TAU's Botanic Gardens and the I. Meier Segals Garden for Zoological Research. Although we do not as yet have a purpose-built space for displaying

exhibitions, we have developed more than two dozen very successful museumbased educational programs:

#### **Guided tours**

The I. Meier Segals Garden for Zoological Research maintains a broad representation of Israeli fauna. The Garden plays host to groups of schoolchildren aged 10-18, teachers, guides and students from other higher education institutions, and offers tours on the Biogeography of Israel, Nature Conservation in Israel, and Reproduction in Nature. TAU's Botanic Gardens comprise an ecological garden that represents the phyto-geographic zones of Israel, and greenhouses that feature special phyto-geographical zones of the world. Tours offered by the Botanic Gardens include the Phyto-geography of Israel and World Plant Diversity.

#### **Science Days**

A science day offers a four-hour program, for classes, mainly for middle school and high school classes. Each day focuses on a topic aimed at enriching and strengthening science education in the visiting class. The themes that are covered are diverse and tailored to the specific needs of each class. The topics include, among others, Marine Biology, Nature Conservation, Biodiversity, Reproduction in Nature, Plants and their Environment, Predators and Prey, Evolution of Man, Adaptation, and Ecology of Temporary Rainpools.

#### **Science Camp**

During school vacations, the science camp - "Spaceship Earth" - offers a journey through the biosphere for children aged 10-12. For three consecutive years we had groups of Arab and Jewish children who have studied together their common environment and learned to get to know and respect each other and the environment. Although this program for the children of Yafo was a huge success, last summer we could not subsidize it due to lack of sponsorship, and thus were able to operate it only for children full cost.

#### **Science Fair and Special Events**

Following the great success of the Nature Campus Pavilion at a national science fair in the town of Yeruham in southern Israel (2002), we were invited this year to exhibit at the Weizmann Institute Science Fair. Nature Campus's exhibition included specimens from the national collections of natural history and from the zoological and botanic gardens. As it was the only pavilion to contain nature demonstrations, it drew huge and varied crowds. Most participants had never had the chance to visit a natural history museum and were fascinated by the exhibits and the scientific explanations. The popularity of the pavilion expressed the true need for such a learning environment for the public in Israel.

#### Educational Website – www.campusteva.tau.ac.il

The Internet is a prime tool for education. In Israel there is a high demand for internet sites in Hebrew, since not all children and adults in Israel are fluent in English. Together with the Center for Educational Technology, Nature Campus built its "virtual feature" — an internet educational site targeted at advancing biodiversity education and conservation. In the first phase, its focus has been on the biodiversity of Israel, while the second phase is intended to deal with global issues too. To date the site is only in Hebrew, and the allocation of funds for its translation into Arabic and English is of the highest priority.

# Science education for the Yafo community - Cooperation with the TAU Preis-Brody Initiative

The Yafo community is a heterogeneous one, with a low socioeconomic profile. It is populated by Arabs – Christian and Moslem, Jews, and recently also by immigrant workers from diverse third world countries. Tel Aviv University has a longstanding commitment to the Yafo Community. Nature Campus gives special emphasis to projects with Yafo in cooperation with the Preis-Brody Initiative, such as an enrichment program for high-school science students, which was doubled last year. Urban Nature for 4th grade students – is a

new project with 7 elementary schools, both Jewish and Arab. In each school a group of 20 4th graders will be selected as the school environmental leadership team. They will learn about Urban Ecology and work on transforming their school grounds from barren "prison-like" environments into nurturing, healthy, bio-diverse spaces, where children and the community can connect with their own natural spirits. By exposing the children to nature close to them, we will help to bring biodiversity back into the community and give inner-city children the precious opportunity to be in touch with the natural world.

#### **Teachers' In-Service Training**

The biology and environmental studies syllabus for high schools, and the science and technology syllabus of elementary and middle schools, incorporate some study of the biosphere. However, most teachers are not acquainted with the biodiversity crisis or with the fundamentals of environmental conservation. Nature Campus endeavors to introduce these concepts into the education system by offering lectures and seminars to teachers. During the past year about 600 teachers were exposed to these issues at various events, in some of which Nature Campus constituted part of the steering committee, and in others of which only Nature Campus lectured and presented its activities.

#### **Pre-Service Training for Environmental Guides**

Last year (2002-2003), the Society for the Protection of Nature in Israel moved the biological part of its pre-service training course to Nature Campus. The SPNI is the leading NGO in environmental education and advocacy in Israel. During its many decades of activity it has shaped a major part of the Israeli approach to Nature. It operates programs all over the country for all sectors of society. Thus, its guides are a principal vector in environmental education. Every year, 70-100 soldier-teachers, national service volunteers and high school graduates join the SPNI instruction staff as guides for its various projects. These new staff members are given a comprehensive pre-service training course. While most of the trainees have no prior background in

environmental studies and ecology, nevertheless, during their work at the SPNI, they serve a crucial role in informal education, particularly in conservation and environmental education. In catering to the specific needs of the SPNI, Nature Campus built a special training program in which 30 researchers participated. The course was designed to provide the guides with a basic understanding of conservation biology in order to professionalize their role as environmental educators. The SPNI course program was the first attempt ever in Israel to deliver the general message of 'Biodiversity'. The course was considered a great success. However, the SPNI budget was severely cut this year and the Nature Campus course was not initially included in the training program. Nonetheless, due to pressure from the directors of the instructional centers and the guides themselves, the SPNI has reconsidered its training program for 2003-2004 and is now planning to include a Nature Campus course. The second course is planned for in January 2004.

#### **Involvement in national policy recommendations**

As the Director of Nature Campus, Dr. Yael Gavrieli participates in promoting environmental education in Israel. She co-chairs the Committee for Biodiversity Education, responsible for developing this aspect of the National Biodiversity Action Plan. She is a member of the UNESCO Man and the Biosphere Israeli Committee, and is involved in various forums that advance these issues.

#### **Publications**

#### **Biodiversity Poster Series**

In order to introduce the concept of Biodiversity to the public and especially to the education system, Nature Campus produced a series of 4 posters describing the Biodiversity of major ecosystems in Israel: Mediterranean Woodlands, Coastal Rivers, Sea Coast, and Urban Nature were

published with the support of the Ministry of the Environment and the UNESCO Man and the Biosphere Committee of Israel.

#### **Guide for Nature Guides (in press)**

There is very little literature available in Hebrew on issues of conservation biology and biodiversity. During the SPNI pre-service course the lack of background materials (or a textbook) was pronounced. In order to answer this need, we are producing a Guide for Nature Guides, which will summarizes the science behind conservation practice with tips on how to interpret it for the public. The Guide will be scientifically edited by a board of leading scientists as well as by pedagogical experts and will present a high standard of design. This will be the first tool of its kind in Hebrew, and will serve teachers and informal educators who wish to have the outdoors as their teaching environment.

# Hebrew version of "Issues in Ecology" of the Ecological Society of America

We are currently translating into Hebrew and adding "the Israeli window" to 5 of the 11 'Issues in Ecology' booklets published by the ESA, with the support of the Beracha Foundation. We are tring to raise funds in order to complete the publication of the whole series as well as to translate it into Arabic. These booklets, written by the leading ecologists of the US, provide a basic and up-to-date scientific view of the major crises that plague our environment, and offers very valuable material for both students (high school and college) and decision makers.

## Collecting trips and expeditions

A healthy natural history museum must have an active collecting program. Our collections have increased over the past decades, the result of private and institutional collections that were given to us as the national repository, and in large part the result of the survey and collecting work of our curators, associate curators, and our technical staff.

In the past year collecting trips and projects have continued in different parts of Israel, the outcome of our university level courses that introduce students to the fauna of the country, and as part of various researcher and graduate student biodiversity studies in different habitats. Bella Galil of the Israel Oceanographic & Limnological Research Institute, our Associate Curator of crustaceans, continued her regular monitoring of the fauna of the Mediterranean Sea around the Palmahim area (at a depth of 200 m) and also carried out a special deepsea collecting trip that yielded species new to our collections and to the region.

Moreover, some of our staff traveled to carry out biodiversity studies and collecting in other parts of the world as part of their research program. Micha Ilan, our Associate Curator of sponges, took part in a research trip to the Bahamas, and collected specimens representing over 150 species in the different islands. He also took part of a collecting trip to Friday Harbor, where over 50 species were collected and identified.

Yehuda Benayahu, our curator of invertebrates, and Amnon Freidberg, our curator of entomology, also traveled to collect. Their reports follow.

#### **Amnon Freidberg**

In 2002 I participated in the 5<sup>th</sup> Congress of Dipterology in Brisbane, Australia, and I took advantage of this opportunity to collect Diptera in various parts of Queensland and New South Wales. Although the area has suffered from continuous droughts and was very dry and fire-striken, I managed to obtain representatives of several endemic Australian families as well as many other interesting species. From Australia we moved to Thailand, where, jointly with Dr. Damir Kovac (Senckenberg Museum, Frankfurt), I conducted a study of the taxonomy, faunistics, ecology, and biology of fruit flies (Tephritidae) infesting bamboo. Several species of this group were collected, and also many other interesting Diptera. From Thailand we moved on to India, where I collected Diptera, including several new species of fruit flies pertaining to my on-going revisions. The main areas in which we collected were North-East India (Meghalaya and Mizoram), Rajhastan and the Western Ghats. The entire trip took about two and a half months, and about 5,000 specimens were brought back to the TAU collection.

In 2003 I organized a seven-week field session in Kenya, Tanzania, Ethiopia, South Africa, and Namibia, primarily aimed to study and collect Tephritidae, Cecidomyiidae (gall midges), and other Diptera. In the first part, in East Africa, I had with me Mr Leonid Friedman, a technician in the insect collection, and Mr. Sergei Kleynberg, a Ph.D. student, whose research project involves the taxonomy of primarily African taxa. We were especially interested in obtaining as many species as possible in alcohol for molecular studies, and we practically found all the species we had anticipated to uncover. In South Africa and Namibia I worked with Dr. Netta Dorchin, a previous Ph.D. student of mine and presently a postdoc at the University of Cape Town. The main aim was to survey the Namibian fauna of fruit flies and gall midges and to rear from host plants as many of them as possible. Despite the dry season, we had quite a

success in achieving this purpose. About 5,000 specimens were brought back to the TAU collection from this African trip.

#### Yehuda Benayahu

Biodiversity surveys of the Kenyan reefs.

Since 2000 four annual field trips have been conducted to the coral reefs of Kenya (Indian Ocean) from Watamu on the northern coast to Kitungamwe on the southern coast, near the border of Tanzania. Prof. Yehuda Benayahu led the trips and accompanied by Dr. Revital Ben-David-Zaslow, Shimrit Perkol, Tali Yacobovich and Orit Barnea (all from Tel Aviv University) and by Prof. Michael H. Schleyer (Oceanographic Research Institution, Durban, South Africa). All the participants are skilled marine biologists with wide experience in such biodiversity surveys. The funds for the trips were raised by Y. Benayahu from Pharma Mar, Spain, a biotechnological company that explores marine resources for natural products with therapeutic potential.

The benthic communities of the reefs were explored in relation to species diversity of soft corals, tunicates, and sponges. Intensive collections were made using a boat, and a variety of habitats were surveyed in detail by SCUBA diving on onshore reefs, in lagoons, and on deeper reefs to 32 m depth. Dozens of dives resulted in approximately 1,500 samples being collected, comprising most of the species of theses groups found on the reefs. This was the first ever survey aimed at evaluating the biodiversity of these taxonomic groups on the Kenyan reefs. The findings indicate that most of the Kenyan reefs are dominated by diverse assemblages of benthic organisms, with a remarkably high abundance of soft corals. The species are still being examined. Some of the sponges and tunicate samples were sent for identification to specialists. Identification of soft corals was conducted by Y. B. To date, 90 species of soft coral have been identified and a preliminary species list has been prepared for

the studied reef-sites. The collection revealed three new genera as well as several new species of soft corals. This was also the first survey of soft corals for the Kenyan reefs. The results, although not yet finalized, reveal that this group is critically important for this reef system and deserves further surveys and careful monitoring, especially in view of global concern for the well being of reef ecosystems.

All the material is currently kept in the Zoological Museum, Department of Zoology, Tel Aviv University, Israel (ZMTAU).

## New museum faculty and staff

This fall, the national collections welcomed two additions to its faculty.

#### **Dr. Dorothee Huchon**

#### **Dan Graur**

Dr. Dorothée Huchon is a specialist in the field of mammalian molecular phylogeny and is currently a lecturer in the Department of Zoology at Tel Aviv University. She received a summa cum laude Batchelor of Science degree in Animal Biology from the University of Montpellier II in 1995. In 1996, she got a summa cum laude Master of Science degree in Genetics and Evolution for her work on "Polymorphism and heterozygosity of the nine-banded armadillo, Dasypus novemcinctus (Dasypodidae)." As customary in the French academic system, in 1997, she completed a second Master degree, this time at the University of Paris XI. Her thesis was entitled "Contribution of exon 28 of the nuclear gene encoding the von Willebrand factor to the determination of rodent phylogenetic relationships," and it was awarded magna cum laude. Dr. Huchon got her Ph.D. degree in 2000 from the University of Montpellier II under the direction of Profs. François M. Catzefliz and Emmanuel J. P. Douzery. Her dissertation dealt with the "Phylogeny and biosystematics of the rodents: Comparison of nuclear, mitochondrial and morphological data." Following her studies in France, Dorothée Huchon pursued postdoctoral research with Prof. Norihiro at the Tokyo Institute of Technology and with Dr. Scott Steppan at Florida State University. Part of her postdoctoral studies was funded by the prestigious Lavoisier grant from the French ministry of foreign affairs.

So far, Dr. Huchon has published 10 scientific papers, all of them in journals with very high impact factors. Among these papers, there is one in which one co-author is her husband, Dr. Tal Pupko, who was recently appointed as lecturer in the Department of Cell Research and Immunology. She is a

frequent reviewer for the top journals in her field, *Molecular Biology and Evolution*, *Molecular Phylogenetics and Evolution*, and *Molecular Ecology*, and has given numerous lectures at international meetings.

At Tel Aviv University, Dr. Huchon will assume the duties of curator of cellular and molecular systematics. So far Dorothée Huchon has acclimatized well to the novelty that is Israel. In her dual role as a mother raising two babies, Nathan and Emilie, and as scientist and mentor supervising the work of her first two Master students, Ionathan Sharon and Chagai Rot, we wish her the best in this new chapter of her life and career.

#### Dr. Sergei Zonstein

#### **Amnon Freidberg**

We are happy to have Dr. Sergei Zonstein, an expert on spiders (Araneae) and spider wasps (Insecta: Hymenoptera: Pompilidae), who immigrated, together with his wife, Irina (an entomologist at her own sake), to Israel from Bishkek, Kyrghyzstan in December, 2002. Dr. Zonstein had focused his studies primarily on central Asian representatives of these two groups. He will first complete several on-going studies, but has already begun research on the Israeli fauna of these groups. The Israeli fauna of spiders is very rich, containing some 50 families together including many hundreds of species, of which the great majority have not yet been studies. Being predacious, spiders are an extremely important component of the ecosystem, and have a special significance in agricultural systems. Spider wasps are parasitic on spiders. Dr. Zonstein's residence with us has already triggered the accumulation and development of the spider collection at TAU, a section of our collections that so far has somewhat been neglected due to the lack of an expert. We are looking forward to a complete absorption of Sergei as a scientist and curator of the spider collection at TAU.

#### **New collections**

## <u>The Mollusc Collection of the late Isaac (Jitzchak) Yaron</u> Henk K. Mienis

Isaac (Jitzchak) Yaron was (and still is) for most students of marine mollusks of the Middle East in general and those of the Red Sea in particular, a well-known name. He was not only one of the founders of the Israel Malacological Society (in 1969), but he also published numerous articles on the mollusks of the Middle East. During both his student and his teaching days at the Technion in Haifa, most of his papers dealt with the mollusks of the Eastern Mediterranean. When he moved to Ben-Gurion University of the Negev in Beer Sheva, however, the mollusks of the Red Sea became the focus of his spare time. Although he was an engineer by profession and never formally studied zoology, his papers are only a faint reflection of the professional way he tackled the many taxonomic problems encountered during the study of Eritrean mollusks. A complete list of his published articles and the new taxa described, was published in Argamon, Israel Journal of Malacology No. 8: 1-7 (1992).

He took advantage of his numerous professional journeys abroad to visit the major museums in Europe and elsewhere in search of Red Sea material and literature. Communication was never a problem. Born on 10 September 1934 in Horbin, China, from Jewish parents originally from Russia, he was used to speaking Russian at home, Chinese with his friends in the street, English at school, and Hebrew in the synagogue. Later on he taught himself French, Italian, German, and even some Danish, in much the same way as he had mastered malacology.

His dream was to write a completely updated monograph on the mollusks of the Red Sea. That dream remained a dream. During a family diving trip to the shores of East Sinai near Ras Umm Sidd on 11 April 1985, Jitzchak disappeared

in the waters of the Gulf of Aqaba. Despite intensive searches his body was never recovered.

For 18 years his extensive malacological collection and library remained almost untouched as memorial to his beloved "hobby" in the "shellroom" in his apartment in Beer Sheva under the loving care of his wife Anina and his now grown-up daughters Dafna and Dahlia and their families.

Jitzchak's collection of shells, his library and unpublished manuscripts, constitute one of the most important private collections in the Middle East: an excellent starting point for further studies of the Eritrean mollusk fauna. We are therefore delighted to announce that this valuable heritage has now been donated to the National Mollusc Collection of Tel Aviv University. A revision of this collection is currently in progress, to be followed by computerization of all the relevant data.

We would like to express our gratitude to Dr. Anina Yaron and the family for generously donating the malacological collection and library to Tel Aviv University.

## Obituary - Prof. H. Mendelssohn Yoram Yom-Tov

Professor Heinrich Mendelssohn was born in Berlin, Germany on October 31, 1910 and died in his home in Ramat Chen on November 19, 2002. Since his childhood he had taken a keen interest in animals but, at his parents' request, he studied medicine in Berlin. He was a member of the Zionist youth movements "Kadima" and "Blau-Weiss", and with the rise of the Nazi movement to power in 1933 he immigrated to Palestine, then under British mandate. Palestine of the time did not yet have a Faculty of Medicine, enabling him to realize



his ambitions and transfer to the study of zoology at the Hebrew University, Jerusalem. There he completed his M.Sc. (on the biology and variability of the desert snail *Sphincterochila boisseri*) and his Ph.D. (on population density of birds in Israel), both under the supervision of Prof. Shimon Bodenheimer. During his studies Mendelssohn was invited by Yehoshua Margolin, the nature studies teacher who founded the Biological-Pedagogical Institute in Tel Aviv, to join the Institute's team as an instructor of nature studies teachers, and upon Margolin's death Mendelssohn was appointed as Director of the Institute (1947-1953).

The Biological-Pedagogical Institute was one of the two core institutions from which Tel Aviv University was to develop. Mendelssohn took an active part in establishing the University and was the first Dean of the Faculty of Natural Sciences and the first Vice-President of the University. He founded the

Department of Zoology and for many years (1956-1966) he served as Head of the Department, which was to become the largest such department in Israel for the study of flora and fauna. He encouraged research in a wide variety of fields, but particularly cultivated study of the whole organism – ecology, behaviour and zoogeography. He perceived a good zoologist to be one who understood how nature worked, and that this understanding was only possible through a deep knowledge of the physical surroundings, of the local flora and fauna in their natural habitat, and to this end he impressed upon his students the necessity to maintain strong links with fieldwork. He founded the Zoological Museum, promoting understanding of the differences and variety of creatures inhabiting the land, and in which today can be found the largest representative collection of Israeli wildlife. The National Collections at the University currently comprise millions of specimens that constitute the basis for documentation and research into the biological diversity of Israel and provide vital data for nature conservation, agriculture and the medical and veterinary services. For many years Mendelssohn was Director of the Zoological Gardens at Tel Aviv University, which he developed as a research and teaching tool, and where he also established breeding groups of endangered species with the purpose of reintroducing them to nature.

Prof. Mendelssohn's research dealt with a wide variety of species, from fish and amphibians, through reptiles, birds and mammals. His study of the poisonous snakes of Israel is the most detailed and reliable on this group; his studies on the effect of agricultural pesticides on raptors in Israel were among the first in the world on this subject and led to a wave of publications and interest; and his studies on the behaviour and ecology of wolves and gazelles constitute only a few of his many works. For his scientific endeavours and contribution to nature and environmental conservation he was awarded many prizes, including the Israel Prize.

There are those who have claimed that Mendelssohn's greatest contribution to the State of Israel was to nature conservation. He was a central figure in establishing the first nature reserves in Israel, the Society for the Protection of Nature and the Nature Reserves Authority. During the period in which the Zionist leaders believed their mission to be to cover the land in concrete, he understood that it was no less important to preserve its landscapes, vegetation and fauna. He was a Zionist of the open landscape, not of the building contractors and the politicians who helped them. Despite being a "Yekke", he had no fear of authority, and acted with firm determination to achieve his goals of nature conservation. His activities in the field of nature conservation were not restricted to Israel's borders alone, and he was a member of a number of professional committees in the IUCN (International Union of Nature Conservation).

Professor Mendelssohn was a fascinating teacher, and throughout the years taught thousands of students, first at the Kibbutz Seminary and then at the Hebrew University, Jerusalem and Tel Aviv University. His courses were extremely popular, and he continued to teach until two years before his death. Many dozens of students carried out their advanced degree studies under his supervision, and these students, their students and their students' students are today among the field researchers of Israel, employees of the Parks and Nature Reserves Authority and instructors and guides with the Society for the Protection of Nature.

He will be remembered for being the father of field zoology and nature conservation in Israel.

## Acknowledgments

Thanking the many friends, colleagues, and staunch supporters who are always there for us is always a pleasant duty. We are particularly grateful to the Chair of the Board of Governors of Tel Aviv University, Michael Steinhardt, for his unswerving support and friendship. His generous pledge to the national collections will be a springboard for a better future. It is more than gratifying to have the trust of Judy and Michael Steinhardt. The late Prof. Heinrich Mendelssohn, the founding father of the National collections and a founder of Tel Aviv University, remembered us in his will. We are, of course, grateful to President Itamar Rabinovich for securing these donations.

The museum faculty and staff are part of a large and active research university that has always been home to us. We are part of a robust academic community that cares for and supports our activities, and we are grateful to our numerous colleagues with whom we teach and collaborate in research and who are ever ready to support our endeavors. We are particularly grateful to Abraham Hefetz and Dan Gerling for their support, and to Zvi Wollberg for his voluntary work with the museum committee.

The Israel Academy of Sciences and Humanities has been involved for many years in attempts to safeguard the collections and to ensure their academic future. In recent years we are particularly grateful for the backing of Yehudith Birk, Ruth Arnon, Raphael Meschoulam, and Dan Shechtman.

Eliora Z. Ron, our Dean for the past few years, has been heavily involved in our activities, and has chaired the steering committee of Nature Campus with dedication and care. It a pleasure to thank her as well as the other members of the steering committee: Niv Ahituv, Iris London Zolty, Relly Shavit, Daphna Cohen-Mintz, Yoav Waisel, and Amram Eshel.

Our collections also enjoy the support of many friends outside Tel Aviv University. We are particularly grateful to our many friends in the Israel Nature and Parks Authority who collect specimens and contribute greatly to our efforts to record the natural history of Israel, and to our colleagues and friends at the Hebrew University, in particular Ronen Kadmon for developing the BIOGIS tool. We thank Miriam Waldman of the Ministry of Science for her creativity in identifying support sources.

Nature Campus was established with the support of the former Director General of Tel Aviv University, Niv Ahituv. Niv took an interest in the project and actively aided its development. For his foresight and trust, we thank him. Nature Campus is a joint faculty-level project in which the I. Meier Segals Zoological Garden and the Botanic Gardens take an active part. For their constructive partnership we thank their directors, David Eilam and Yoav Weisel. We are also grateful to Ronit Tirosh, the Director General of the Ministry of Education, and to Bina Bar-On, deputy Director General of the Ministry of the Environment for their support and cooperation in the development of education projects on the environment.

Yehudit Shvili of the Preis-Brody Initiative has aided our fruitful cooperation with the community and schools of Yafo. We thank Daniel Bar-Eli of the UNESCO office in Israel and Orly Peled of the Society for the Protection of Nature in Israel for their support, their friendship, and their constructive engagement in many of our projects. We wish to acknowledge the marvelous work of Orly Fromer in publicizing our activities.

Nature Campus activities enjoy the invaluable financial support of the Ministry of the Environment, the Ministry of Education, Yad Hanadiv Foundation, the Beracha Foundation, the Porter Foundation, and UNESCO.

Finally, it is our pleasure to thank two very special friends of the collections who have been there for us for some years now. Martin Weyl, who has shared his astonishing expertise in museology and who has taught us and educated us, and Shula Navon for everything else.

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Testing the use of multivariate intersite taphonomic comparisons.

9<sup>th</sup> Conference of the International Council of Archaeozoology, Durham, UK. (T. Dayan).

2002 Rehydration of the lichen *Ramalina lacera* results in production of reactive oxygen species and nitric oxide, and alterations in the antioxidant status of the thallus. Absracts of the Annual Meeting of the Israel Society for Oxygen and Free Radical Research, Western Galilee Hospital, Nahariya, Israel, 1 December (L. Weisman, J. Garty, A. Hochman).

- 2002 Sixth EU Framework Programme of the European Community for research technological development and demonstration activities; Network of Excellence-Marine Molecular Biotechnology. Invited lecture: Bioactive Compounds from Red Sea Marine Organisms (Y. Loya)
- 2002 Sixth International Porifera Congress, (Rapallo, Italy). (M. Ilan).
- 2002 The deep-sea fishes of the eastern Mediterranean. The fourteen Annual Symposium on The Mediterranean Continental Margin of Israel, Haifa. (Abstract) (M. Goren).
- 2002 The deep sea fishes of the Levantine Basin. 37th European Marine Biology Symposium, 5-9 August, Reykjavík, Iceland. (Abstract) (M. Goren).
- 2002 The Epipaleolithic faunal sequence in the coastal plain of Israel. ASWA 2002, Archaeozoology of Southwest Asia, London, UK. (T. Dayan).
- The global biodiversity crisis.Workshop on biodiversity in the Arava Valley, Aqaba, Jordan. (T. Dayan).
- 2002 The International Society of Reef Studies European Coral Reef Meeting; Cambridge, England. Lecture: Bleaching of Mediterranean corals is caused by a bacterial pathogen (Y. Loya)
- 2002 The World Bank/UNESCO/IOC International Targeted Group of Experts on "indicators of coral bleaching". Second Field-Workshop of the Working Group, Puerto Morelos, Mexico (Y. Loya)
- Workshop on "Biological considerations associated with current geochemical approaches using stony corals as proxies for the reconstruction of different aspects of past climates" Woods Hole Oceanographic Institution, Cape Cod, Mass.Invited lecture: "Using stony corals as proxies for the reconstruction of Red Sea past climates" (Y. Loya)
- 2003 4<sup>th</sup> International Symbiosis Congress, Halifax, Canada. Title of lecture: Initiation of zooxanthellae-host symbioses: Soft corals as a model system. (Y. Benayahu)

- 2003 7th International Conference on Coelenterate Biology, Laurence, Kansas, USA. Title of lecture: The soft coral *Heteroxenia fuscescens*: life history and developmental processes. (Y. Benayahu)
- Alternative Andean speciation hypotheses and a comparison of nuclear and mitochondrial genes in resolving the phylogeography of Phyllotis, a South American rodent. Evolution 2003. Chico, (California) (Albright J. C., Steppan S. J., Huchon D. & Ramirez O.)
- 2003 Chemistry and Biology of Marine Organisms (Crete, Greece) (M. Ilan).
- Detailed magnetic/paleomagnetic data analysis in the Sea of Galilee and adjoining areas. <u>Trans. Of the 65 EAGE Conf.</u>, Stavanger, Norway, P096, 4 pp (Eppelbaum, L., Katz, Y., and Ben-Avraham, Z.).
- 2003 Environmental aspects of genetically modified organisms.

  National expert meeting: "Towards public discourse on agricultural biotechnology and genetically engineered food in Israel", sponsored by the Heschel Center for Environmental Learning and Leadership and the Porter School of Environmental Science, Israel. (T. Dayan).
- 2003 Fourth International Symbiosis Society Congress (Halifax, Canada) (M. Ilan).
- 2003 Geological-geophysical analysis of Neogene-Quaternary basalt associations in the Lake Kinneret area. <u>Trans. Of the Conf. Of the Israel Geol. Soc. Ann. Meet.</u>, Dead Sea, Israel, p. 28 (Eppelbaum, L., Ben-Avraham, Z., Katz, Y., and Marco, S.).
- 2003 International Review Board Meeting of the Coral Bleaching Project.Research Institute of the Subtropics (RIS), Tokyo, Japan (Y. Loya)
- Integrated analysis of magnetic, paleomagnetic and radiometric data in the Lake Kinneret area (northern Israel). <u>Trans. Of the XXVIII EGS MEET.</u>, Nice, France, 2 pp (Eppelbaum, L., Ben-Avraham, Z., and Katz, Y.).
- 2003 Marine Molecular Biotechnology and Biodiversity Meeting; Wendelsheim, Germany. Plenary lecture: Biodiversity of the Red Sea coral reefs: A unique source for new natural products (Y. Loya)
- 2003 Molecular dating display an independent colonization of South America by primates and rodents. Evolution 2003. Chico, (California) (Poux C., Chevret P., Huchon D., De Jong W. W. & Douzery E. J. P.)

- 2003 NATO Science Programme: Advanced Study Institute: Strategic Mnagement of Marine Ecosystems, Sophia Antipolis, France. Title of lecture: Artificial reefs in the Red Sea (Y. Benayahu)
- 2003 Permian deposits in the subsurface of Israel. (To XVth International Congress on Carboniferous and Permian Stratigraphy, Netherlands, Utrecht (O. Orlov- Labkovsky)
- Reintroduction effect on survival rate and reproduction success of reintroduced Persian fallow deer.
   Planning for biodiversity: the role of ecological impact assessment in Israel.
   17<sup>th</sup> Annual Meeting of the Society for Conservation Biology, Duluth, Minnesota. (T. Dayan).
- 2003 Revision of Carboniferous Foraminiferal Zonation of Middle and South Tien-Shan. (To XVth International Congress on Carboniferous and Permian Stratigraphy, Netherlands, Utrecht (O. Orlov- Labkovsky)
- 2003 Sixth International Marine Biotechnology Conference (Japan) (M. Ilan).
- Some Eastern Mediterranean volcanic-tectonic ring domes as promising diamond-bearing structures. <u>Trans. Of the XXVIII EGS Meet.</u>, Geophysical Research Abstracts 5, Nice, France, 2 pp (Kats, Y., and Eppelbaum, L.).
- The establishment of the Lessepsian migrant *Cellana rota* (Gastropoda) in the Mediterranean Sea and its' demographic effects on the local species *Patella caerulea*. The Annual Meeting of The Zoological Society of Israel (Atad, I., Feldstein, T., Abelson, A., Mokady, O.).
- 2003 The World Bank/UNESCO/IOC International Working Group on indicators of coral bleaching:- Workshop on Coral Bleaching: Biological Early Warning Systems, Paris, France (Y. Loya)
- Workshop on "Coral Health and Diseases", Eilat, Israel. Invited lecture: The coral reefs of Eilat: 35 years of monitoring their coral community structure (Y. Loya)

### **Graduate students**

#### PhD students

1995-2003 Irit Zohar (T. Dayan and I. Herskowitz) Fishing activity at the Sea of Galillee 19,000 B.P.: ecological, economical, and cultural implications. 1996-2003 Judy Shamoun-Baranes (Y. Yom-Tov, P. Berthold and Y. Leshem) Development of a soaring bird migration model for Israel and the Middle East. 1996-2003 Sigal Shefer (A. Abelson and E. Geffen) Lessepsian migration patterns of benthic. 1997-1999, 2003- Giddy Landan (D. Graur) Characterization and control of multiple sequence alignment errors with emphasis on their effects on phylogenetic reconstruction. 1997-2002 Maoz Fine (Y. Loya) Community structure and dynamics of Mediterranean corals. 1997-2002 Noam Leader (Y. Yom-Tov and J Wright) The reliability of vocal signaling in the orange-tufted Sunbird Nectarinia osea. 1997-2002 Shirli Bar-David (T. Dayan and D. Saltz) The Reintroduced Population of Persian Fallow Deer--Modeling Population Growth in Time and Space. 1997-2003 Dafna Zeevi (Y. Benayhu) UV-Resistance mechanisms of soft corals and the involvement of their symbiotic zooxanthellae. 1997-2003 Netta Dorchin (A. Freidberg) Taxonomy, biology and ecology of Gall midges. 1997-2003 Omer Choresh (Y. Loya) Expression of heat shock proteins (HSPs) in marine invertebrates: evelopment of an early warning system for disturbed marine environments.

1997- Aharon Sasson (T. Dayan, I. Finkelstein, and Z. Herzog). Pastoralism in the Iron Age at the northen Negev Desert.

1998-2003 Michael Rosenfeld (Y. Loya)

The use of contemporary corals in predictive models concerned with global climate change.

1998-2003 Dov Kelman (Y. Loya)

Biologically active materials derived from Red Sea organisms.

1998- 2003 Yariv Malihi (A. Freidberg and D. Gerling)

Biology and ecology of Cryptocephalus sinaiticus moricei.

1999-2003 Y. Mashrawi (I. Hershkovitz)

The relationship between architecture and diseases in the vertebral column.

1998- Lior Weissman (J. Garty and A. Hochman)
Oxidative stress in lichens and air pollution.

1999- Liora Glass (E. Geffen and T. Dayan).

The ecology of jungle cats in natural and anthropogenic habitats in Israel.

1999- Orit Barneah (Y. Benayhu)

Micoscale events during the onset of coral-algal symbiosis.

1999- Reuven Ugorok (M. Goren)

Systematic and ecological aspects of the Blenniidae of eastern Mediterranean.

1999- Shai Meiri (T. Dayan and D. Simberloff)

Island rules revisited.

1999- Vered Shimony (O. Mokady and B. Moav)

Establishment and maintenance of the head region in colonial hydroids.

1999- Yael Mandelik (T. Dayan and E. Feitelson)

Assessing the ecological aspects of environmental assessment in Israel.

2000-D. Alterovitz (I. Hershkovitz)

Association between lower back pain and lumbar region

architecture.

2000-Reuvat Nitzan (T. Dayan and A. Ar)

Population dynamics of the chukar partridge in Israel.

2000-Sharon Gild (O. Mokady)

Invertebrate allorecognition.

2000-S. Peleg (I. Hershkovitz)

Skeletal manifestation in kyphosis and scoliosis.

2001-D. Ezra (I. Hershkovitz)

Aging of the cervical spine.

2001-Einat Hazkani-Covo (D. Graur)

> Aspects of genome evolution: Relationships among genome geography, patterns of expression, and sequence conservation of

genetic elements.

2001 -Eran Hadas (M. Ilan)

Sponge aquaculture.

2001-Lee Koren (E. Geffen and O. Mokady)

Vocalization as an indicator of individual quality in rock hyrax.

2001-N. Knopp (I. Hershkovitz)

Dancer's injuries.

2001-Shimrit Perkol (Y. Benayhu)

Spatial and temporal interactions between artificial and natural

reefs.

2001 -Steindler, L. (M. Ilan)

Physiology of photosymbionts associated with marine sponges.

2001-Tal Dagan (D. Graur)

Evolution and co-evolution of paralogous sequences.

2001-Tamar Feldstein (O. Mokady)

Molecular level markers for biomonitoring the coastal

environment.

2002-Hadass Schteinitz (Y. Yom-Tov and T. Dayan)

Species and community level investigation of the environmental

factors which affect mammal distributions in Israel.

2002-Yuav Motro (Y. Yom-Tov and U. Safriel)

Mechanisms of biological control of a rodent pest by a nocturnal

raptor: the use of barn owls for vole control in Israel.

2003-B. Bahaa (I. Hershkovitz)

Macro and microstructure of the annulus fibrosus.

2003-Merav Weinstein (T. Dayan)

The effect of invasive Australian acacias on biodiversity.

2003 -Leon Novak (M. Ilan)

> Engineering a bacterial expression system to produce large amounts of known and of modified naturally occurring bioactive compounds of pharmacological interest.

2004-G. Dar (I. Hershkovitz) Spondyloarthropathy.

#### **MSc students**

1997-2002 Orly Tamir (J. Garty)

> Analysis of changes in the quantum yield of PSII in lichens exposed to air pollution, in regard to other physiological parameters and to their elemental content.

1998-2002 Alon Daya (M. Ilan)

Ecology and genetics of Hawksbill turtles.

1998-2002 Atalya Trua (E. Geffen)

Factors determining the distribution of European badgers in

Israel.

1998-Nurit Levi (M. Goren and O. Mokady)

Systematics of the genera Acanthobrama and Mirogres.

1999-2002 Andre Aaronov (M. Goren)

Ecological aspects of Epinephalus fish species along the

Mediterranean coast of Israel.

1999-2002 Mali Toress (Y. Yom-Tov and U. Motro) Diet selection in the barn owl *Tyto alba*. 1999-2002 Sharon Tomer (J. Garty and A. Hochman) The biochemical and physiological response of the lichen Ramalina lacera to air pollution. 1999-2002 Tal Levin (J. Garty) The physiological responses of lichens to chemical pollutants and UV-B radiation. 1999-2003 Andrea Alevi (M. Goren) The ecology of the fishes in Taninim River. 1999-2003 Boaz Mayzel (M. Ilan) Antifouling defense mechanisms in the ascidian *P. nigra*. 1999-2003 Ram Buchnik (T. Dayan and Y. Steinberger) Ecological and paleoecological aspects of barn owl foraging in the different habitats of Israel. 2000-2003 Aviad Shainin (Y. Yom-Tov, D. Kerem and O. Mokadi). Ecological and genetic characterization of the bottlenose dolphin Tursiops truncates along the Israeli coastline. 2000-2003 G. Dar (I. Hershkovitz) Sacroiliac ankylosing: Etiology and pathophysiology. 2000-2003 Meir Sussman (Y. Loya and E. Rosenberg) Fluorescent In Situ Hybridization (FISH) reveals the fireworm Hermodice carunculata as a reservoir and a possible vector for the coral pathogen Vibrio shiloi. 2000-2003 Ofer Ben-Zvi (Y. Loya and A. Abelson) Deterioration Index (DI): a suggested tool for monitoring reefcoral community health. 2000-2003 Omer Polack (Y. Loya and Y. Benayahu) Reproductive cycle of *Palythoa* sp. at Eilat, Red Sea. 2000-2003 Shani Shainin (Y. Yom-Tov, U. Motro and E. Geffen) Behaviour of the red fox Vulpes vulpes. 2000-2003 Sharon Levi (Y. Benayahu and Y. Kashman) Chemical ecology of soft corals.

2000- Ettie Sapir (Y. Benayahu and A. Gasith)

Ship-hull coatings: toxicological response and non-polluting, energy saving fouling control.

2000- Shaul Shaul (D. Graur)

The order of nucleotides in the acceptor stem of transfer-RNA molecules: The evolution of the second genetic code.

2000- Yaron Krotman (M. Goren)

The effect of human activity on the fish communities in Upper Galilee.

2001-2003 Merav Weinstein (T. Dayan and N. Kronfeld-Schor)

Diel and seasonal variation in the arthropod fauna, the resource base of spiny mice at Ein Gedi.

2001-2003 Noa Levin (Y. Loya)

Environmental factors influencing the chronic bleaching of the Mediterranean stony coral *Oculina patagonica*.

2001-2002 Rotem Sorek (D. Graur)

Exonization of Alu sequences.

2001-2003 Cohen, N. (M. Ilan)

The association between marine sponge and filamentous fungi

2001- Amir Mitchell (D. Graur)

Patterns of mutation in bacteria as inferred from unitary pseudogenes of Mycobacterium leprae.

2001- Anat Maoz (Y. Benayahu)

Algal acquisition by zooxanthellate primary polyps.

2001- Assaf Zevoluni (A. Abelson and O. Mokady)

Genetic variability within and between populations of the coral *Stylophora pistillata*.

2001- Boas Libes (M. Goren)

Ecological factors affected the reproduction of *Acanthobrma telavivensis*.

2001- Edit Adler (Y. Benayahu)

Cross infection of juvenile corals by zooxanthellae clade C.

2001-Einav Vidan (T. Dayan and N. Kronfeld-Schor) Foraging activity patterns of spiny mice: an experimental analysis. 2001-G. Samora (I. Hershkovitz) Cribra orbitalia in historic populations. 2001-Inbar Perez (E. Geffen and O. Mokady) Estimation of leopard population size and composition based on DNA from feces. 2001-Limor Barak (O. Mokady) Cellular level biomonitoring markers in coastal mollusks. 2001-N. Bachrach (I. Hershkovitz) Natufian inhabitants The last from El-Wad Terrace: Anthropological study. 2001-Noga Sokolover (M. Ilan) Induced chemical defense in sponges. 2001-Uri Roll (T. Dayan and D. Simberloff) Survey and biogeographic analyses of invasive species in Israel. 2002-Ein-Gil, N. (M. Ilan) Chemical interactions of sponges and their associated fungi. 2002-Neta Dasa (M. Goren) Reproductive aspect in riverine fish. 2002-Matan Oren (M. Ilan) Theonella swinhoei microsymbionts. 2002-Ornit Hall (T. Dayan and D. Wool) Parataxonomy as a research and conservation tool in Israel. 2002-Ehud Columbus (T. Dayan) Biodiversity in agricultural landscapes. 2002-Ela Sela (J. Garty and A. Hochman) The biochemical response of the lichens *Ramalina lacera* and *R*. maciformis to environmental stress.

2002-Itay Mayrose (D. Graur) Bayesian methods for inferring conserved regions in proteins using probability models of evolution. 2002-Mati Halperin (Y. Benayahu and M. Goren) Recruitment of fish to experimental floating and fixed artificial reefs. 2002-Tal Levanoni (T. Dayan) Biodiversity and sylviculture in KKL forests of Israel. 2003-Amy Shlesinger (Y. Loya and E. Zlotkin) A model of external digestion in Cnidaria: Nematocysts' toxins of the Mediterranean sea-anemone Aiptasia diaphana and their role in external digestion. 2003-Amir Gur (M. Ilan) Iron deposition in sponges. 2003-Chagai Rot (D. Huchon and M. Ilan) Phylogenetic relationships within sponges. 2003-Eran Levin, (Y. Yom-Tov and A. Barnea). The diet of some insectivorous bats in northern Israel. 2003-Ifat Guata (M. Goren) Recolonization of fishes in damaged aquatic habitats. 2003-Inbal Brickner (Y. Yom Tov and E. Gefen) The impact of feral cats on Israeli wildlife 2003-Inbal Ginsburg (Y. Benayahu) Farming of soft coral for reef rehabilitation purposes. 2003-Ionathan Sharon (D. Huchon) Evolution of pseudogenes related to eye vision in African molerats (family: Bathyergidae). 2003-Larisa Lerner (A. Freidberg) Studies of Carpomyina (Tephritidae). 2003-Lidar Sappir (T. Dayan and G. Bar-Oz) The paleoecology and paleoeconomy of Motza, a Pre-Pottery Neolithic B site.

2003- Lior Shine (J. Garty and A. Hochman)

The biochemical and physiological response of lichens to air pollution.

2003- Nili Angelister (Y. Yom-Tov and U. Motro)

The effect of human disturbance on rodents communities in the southern coastal plain.

2003- Rachel Armoza (Y. Loya)

Stress bio-indicators in scleractinian corals.

2003- Sergei Kleynberg (A. Freidberg)

A revision of the Schsitopterum clade of Schistopterini.

Z. Leader (Y. Yom-Tov and U. Safriel).

The diet of the long-eared owl (Asio otus) and the barn owl

(Tyto alba) in the Negev.

2004- Ran Sulam (Y. Loya)

Outbreak of coral diseases at the coral reefs of Eilat.

# **Fellowships and grants**

- 1996-2002 Research Grant, Consortium Da'at, Ministry of Industry and Trade, Jerusalem (D. Graur).
- 1998-2002 Israeli Ministry of Science:Novel Bioactive Compounds from Marine Invertebrates and their symbionts (Y. Loya and M. Ilan).
- 1998-2002 The International Atomic Energy Agency, Vienna. Lichens as biomonitors of air pollution in the Negev Desert. (\$ 16,500) (J. Garty).
- 1998-2003 Israeli Ministry of Science- Establishment of a National Infrastructure Laboratory: Center for High Throughput Screening (HTS) for Novel Bioactive Compounds at Tel Aviv University-(Y. Loya Director and Coordinator of a research project involving 22 scientists from 6 academic and research institutions in Israel)
- 1999-2002 United States-Israel Binational Science Foundation (BSF). Research project: Macro-and microscale integrated events during the onset of coral-algal symbiosis (\$55,000 per annum) (Y. Benayahu).
- 1999-2003 MERC-Bi-national Research and Monitoring Program (Israel Jordan) for the Red Sea Marine Peace Park, Aqaba, Jordan (Y. Loya)
- 1999-2003 The Ministry of the Environment and the Israel Nature and Parks Authority: Breeding of *Acanthobrama telavivense* in captivity (M. Goren).
- 2000-2004 Research grant from the Beracha Foundation ("Assessing environmental assessment in Israel") (\$31,500) (T. Dayan).
- 2000-2002 Carmel River Management Authority. Fish ways in Taninim River as a model for fish ways in the coastal system of Israel (M. Goren).
- 2000-2002 Ministry of Science grant for absorbing new immigrant scientists into the national collections of natural history at Tel Aviv University (Three year grant at 100,000 NIS [ca. \$25,000] per annum) (T. Dayan and M. Goren).

- 2000-2003 The Ministry of the Environment and the Israel Nature and Parks Authority. The ichthyofauna of the Taninim River as a model for conservation of the fish fauna in the coastal system of Israel (M. Goren).
- 2001-2002 Porter School of Environmental Studies Research Fund. Research Project: Development of benthic assemblages on floating artificial structures: Environmental effects (\$15,000) (Y. Benayahu).
- 2001-2002 The University Research Fund, Tel Aviv University ("A systematic survey of non-indigenous species in Israel: A pilot study for scientific research on invasive species") (\$9,000) (T. Dayan).
- 2001-2004 Joint German Israeli Research Project (BMBF and MOS). Anthropogenic impact on fish biodiversity in the Jordan River basin (M. Goren).
- 2001-2004 US Israel Binational Science Foundation (\$105,000) (E. Geffen and M. Kam)
- 2001-2005 Research grant from the Israel Scientific Foundation ("The roles of ecological and physiological selective forces in shaping rhythm biology and community structure in a rocky desert rodent system") (four year grant; \$50,000 per annum) (T. Dayan and N. Kronfeld-Schor).
- 2001-2006 Joint German-Israeli Research Program in Environmental Research (GLOWA); as part of a proposal entitled: "Impacts of global change on East-Mediterranean environs: an integrated assessment of hydrological, agricultural, ecological and socioeconomic aspects" (five year grant; \$45,000 per annum) (T. Dayan, M. Goren, and A. Freidberg).
- 2002 Short-term Fellowship, Japan Society for the Promotion of Science, Tokyo (D. Graur).
- 2000-2002 The Chief Scientist, The Bureau of Environmental Quality. Lichens as biomonitors of air pollution (110,000 NIS) (J. Garty).
- 2000-2003 Research Grant, The Foundation for Basic Research, Tel Aviv (D. Graur).
- 2001-2004 BSF US Israel Binational Scientific Foundation (Jerusalem, Israel). (US\$ 209,691) (M. Ilan).

- 2002-2003 DFG (Germany) grant to work on "Bamboo Tephritidae in South East Asia" (\$3,000) (A. Freidberg).
- Research grant for the Israeli Ministry of the Environment ("Use of a demographic and geographic model of an umbrella species for planning continuous open areas in the Upper Galilee") (90,000 NIS (ca. \$19,000) (S. Bar-David, D. Saltz, T. Dayan, and Y. Shkedy).
- Research grant from the Jerusalem Institute for Israel Studies ("Ecological impact assessment: Tools for evaluating the effects of development on biodiversity") (20,000 NIS (ca. \$4000) (T. Dayan and Y. Mandelik).
- 2002- Ecological implications of artificial islands: possible role as invasion 'stepping-stones' and marine sanctuaries. The Porter School for Environmental Studies. (\$15,000) (O. Mokady)
- Vocalization as an indicator of individual quality in rock hyrax. The Tel Aviv University Internal Fund for Research Encouragement. (\$8,000) (O. Mokady)
- 2002-2003 Ministry of Science and Technologies (Jerusalem, Israel). (NIS 1,109,750). (M. Ilan).
- 2002-2003 National Inheritance Foundation (Jerusalem, Israel). (NIS 5,000). (M. Ilan).
- 2002-2003 The Tel Aviv University Fund. Lichens and UV-B radiation. (\$7,500) (J. Garty).
- 2002-2005 International Arid Lands Consortium (IALC) (\$100,000) (E. Geffen, M. Kam and G. Roemer).
- 2002-2005 Israel Science Foundation (ISF)-"An integrative approach of studying bacterial coral bleaching in the coral reefs of Eilat". (Y. Loya and A. Kushmaro).
- 2002-2005 Research grant from the Israeli Ministry of the Environment ("Ecological impact assessment: Tools for evaluating the effects of development on biodiversity") (three year grant at 80,000 NIS (ca. \$18,000) per annum) (T. Dayan and Y. Mandelik).

- 2002-2006 BSF. Response of lichens to oxidative stress exerted by environmental adversities. Together with Prof. Ayala Hochman and Prof. Brian Bradley (UMBC). (US\$ 152,000) (J. Garty).
- Grant from the Beracha Foundation ("Publishing a series of Hebrew language policy papers on global environmental issues and their relevance to Israel") (\$30,000) (Y. Gavrieli and T. Dayan).
- Research grant from the Jewish National Fund ("The influence of different forestry regimes on biodiversity") (Three year grant at 32,000 NIS (ca. \$7,500) per annum) (T. Dayan and Y. Mandelik).
- The Antiquities Authority research grant ("Analysis of the faunal remains from the Neolithic of Motza") (7000 NIS (*ca.* \$1500) (T. Dayan).
- The Porter School of Environmental Studies, Italian collaborative research. Research Project: Artificial Marine Structures (AMS): Multifunctional Tool for Research and Environmental Management in the Mediterranean and Red Sea (MED- RED) (EURO 256,000) (Y. Benayahu).
- 2003- Pharma Mar, Spain. Research project: Collection of marine invertebrates from the coral reefs of Kenya (\$57,000, via RAMOT) (Y. Benayahu).
- 2003-2007 USAID-CDR, Research Project: Scientifically based framework for conserving and 2007 monitoring the Eritrean coral-reefs (US\$ 200,000) (Y. Benayahu).
- The World Bank/UNESCO/IOC International Targeted Group of Experts on "indicators of coral bleaching". Y. Loya Co-Chairman with Professor Ove Hoegh Guldberg (Chairman) of the group which is composed of 15 scientists as follows: from USA (3) Hawaii (1), England (2), Australia (2), Kenya (3), Israel (1), Philippines (1), Mexico (1) and France (1). The group meets and works together 2-3 weeks every year at 4 reef sites: Heron Island (Great Barrier Reef, Australia), Puerto Morelos (Mexico), Philippines (exact location to be determined) and Zanzibar.
- Tel Aviv University Basic Research Grant (\$8,000) (E. Geffen)
- 2002-2003 UNESCO participation program, Biodiversity Training for Informal Educators (Y. Gavieli) (\$17,000)

2002-2003	Yad Hanadiv. The Biodiversity of Israel –A Virtual Tour and a Nature Campus Tour (Y. Gavrieli) (\$50,000)
2003-2004	Ramat Hanadiv, Biodiversity research projects for high school students (y. Gavrieli) (\$32,100)
2002	Ministry of Education, Nature Campus On-Line (Y. Gavrieli) (\$25,000)
2003	Porter Foundation, Biodiversity Training (Y. Gavrieli) (\$10,000)

## **Public service**

1969 -National Representative in Scientific Committee of Oceanographic Research (SCOR) (L. Fishelson). 1976-Curator of the Fish collection, Zoological Museum, Tel Aviv University (M. Goren). 1983-Curator of the Invertebrate collections, Zoological Museum, Tel Aviv University (Y. Benayahu). 1983-Scientific Advisor of the Israel Nature & Parks Authority (M. Goren). Curator of the Entomological collections, Zoological Museum, Tel 1985-Aviv University (A. Freidberg). 1985-Member of the committee for Fauna and Flora of Israel - The Israel Academy of Sciences and Humanities (M. Goren). 1986 -Regional Central Asia Committee of Stratigraphy, Member of Board (O. Orlov- Labkovsky). 1987-Curator of terrestrial vertebrates, Zoological Museum, Tel Aviv University (Y. Yom-Tov). 1988-Member of the Fauna & Flora Committee, Israel Academy of Sciences and Humanities (Y. Yom-Tov). 1989-Pre-clinical Advisor for the New York Program medical students, Tel Aviv University (Y. Rak). 1989-The Willi Hennig Society (elected fellow) (A. Freidberg). 1990-Deutsche Gesellschaft für Tropenoekologie (A. Freidberg). 1990-Member of the International Ornithological Committee (Y. Yom-Tov). 1991-Smithsonian Institution Entomology, Research Associate (A. Freidberg).

Member of the Board of Publications, Senckenberg Institute,

Germany (L. Fishelson).

1992-

- 1993- Ecology Graduate Program Committee, Faculty of Life Sciences, Tel Aviv University (T. Dayan).
- 1993 Member of the IUCN Canid Specialist Group (E. Geffen).
- 1993- Scientific Advisor to the Yarqon River Authority (M. Goren).
- 1994- Member of Curriculum Committee, Tel Aviv University (Y. Rak).
- 1994- Vice President of Societas Europaea Ichthyologrum (European Ichthyological Society) (M. Goren).
- 1995- Associate Editor of Molecular Biology and Evolution (D. Graur).
- 1995- Member of the Museum Committee in the Zoology Department (Y. Benayahu).
- 1996- Editor of the Journal of International Wildlife Law & Policy, Corresponding (M. Ilan).
- 1997-2002 Member of the international committee of the German Israeli cooperation in Marine Sciences (MARS) (M. Ilan).
- 1997 Member of the scientific steering committee of the Institute for Nature Conservation Research (M. Ilan).
- Departmental Committee, Department of Zoology, Tel Aviv University (T. Dayan).
- 1998- Israel Journal of Entomology, Editorial board (A. Freidberg).
- 1998- Israel Journal of Zoology, Editor-in-Chief (M. Ilan).
- Member of the Editorial Board of Israel Journal of Zoology (D. Graur).
- 1998- Scientific co-convenor of DIVERSITAS (An international progremme of Biodiversity Science) STAR element 9 on "Inventory and Monitoring of Inland Water Biodiversity" (M. Goren).
- 1999- Appointed incumbent of the Igor Orenstein Chair for Gerontological Research (Y. Rak).
- 1999- Co-Chair of the committee for Fauna and Flora of Israel The Israel Academy of Sciences and Humanities (M. Goren).

- Member, National Committee for the environmental curriculum in high schools (L. Fishelson).
- Member of the Board of Directors of the Inter-university Institute (IUI), Eilat (Y. Benayahu).
- Member of the Committee for terms in ecology and environmental quality, The Academy for Hebrew Language (Y. Benayahu).
- 2000-2003 Member of the Teaching and Ph.D. students Committee in the Zoology Department (Y. Benayahu).
- 2000 Head of the Faculty Teaching committee (M. Ilan).
- 2000- Member of the Academic Planning Committee, Tel Aviv University (Y. Loya)
- 2000- Member of the Board of Directors of the Inter-university Institute (IUI), Eilat (Y. Loya)
- 2000- Member of the Scientific Review Board Coral bleaching Project, Research Institute for the Subtropics (RSI), Okinawa, Japan. (Y. Loya)
- 2000- Member of the Scientific Advisory Board of the International Institute (Peoples) (T. Dayan).
- 2000 Member of the steering committee of the Department of Biology, Israel Oceanographic and Limnological Research, Haifa (M. Ilan).
- 2001-2002 Scientific Advisor to the Natural History Museum of Los Angeles County for an NSF funded exhibit on "dogs" (T. Dayan)
- 2001-2003 Geological Survey of Israel, Jerusalem, Israel Volunteer-Investigator: - Permian Foraminifera (Protista) in Israel (O. Orlov-Labkovsky).
- 2001- Co Chairman -International Targeted working group on coral bleaching under the auspices of the World Bank, in collaboration with IOC/UNESCO (Y. Loya)
- 2001- Chair Israel MAB (Man and Biosphere) UNESCO Committee (T. Dayan).

- Member of the Board of Directors of the Society for the Protection of Nature in Israel (SPNI), member of the board's conservation committee, and member of the SPNI Council (Y. Yom-Tov and T. Dayan).
- 2001- Member of the executive committee of the Zoological Society of Israel (M. Goren).
- 2001- Member of the Israel IGBP (International Geosphere Biosphere Program) Committee (T. Dayan).
- 2001- Member of the Forum for Public Transportation in Israel (O. Mokady).
- 2001- Member of the Library Committee, Tel Aviv University (Y. Benayahu).
- 2001- Steering Committee for Nature Campus, Public Programs, Exhibitions and Education at the National Collections of Natural History, the I. Meier Segals Garden for Zoological Research and the Botanic Gardens (T. Dayan).
- Tokyo Institute of Biological Sciences Distinguished Technology Professor (D. Graur).
- 2002-2003 Head, "space and housing" Committee, Department of Zoology (Y. Benayahu).
- 2002-2003 Head, Ph.D. students Committee, Department of Zoology (Y. Benayahu).
- 2002- Head, Institute for Nature Conservation Research, Tel Aviv University (T. Dayan).
- 2002- Member of the editorial board of the journal Marine Pollution Bulletin (Y. Loya).
- 2002- Member of the executive committee of the Zoological Society of Israel (R. Ben-David-Zaslow).
- 2002- Member of the Department Committee in the Department of Zoology (Y. Benayahu).
- 2002- Member of the interdepartmental equipment committee, Faculty of Life Sciences, Tel Aviv University (ZABAM) (Y. Benayahu).

- 2002 Jul.-Aug. Zoological Museum of Copenhagen, Visiting scientist (Y. Yom-Tov).
- 2002 Nov. National Museum of Natural History Leiden, Netherlands, Visiting Professor (Y. Benayahu).
- 2003 Aug. National Museum of Natural History Leiden, Netherlands, Visiting Professor (Y. Benayahu).
- Advisory committee for the Minister of the Environment's award for volunteers (T. Dayan).
- Head of "Research and Monitoring" team towards developing a national biodiversity action plan for the State of Israel (T. Dayan and R. Kadmon).
- Search committee for a Chief Scientist for the Israel Nature and Parks Authority (T. Dayan).
- 2003- Head, Department of Zoology (Y. Benayahu).
- 2003- Member of the Board of Directors of the Nature and National Parks Protection Authority of Israel (INPA), and member of the Science Committee of the Board (T. Dayan).
- 2003- Professional Committee for Biology Teaching in the Ministry of Education, Israel (T. Dayan).
- Steering committee for "The environmental voice at the Judean Foothills", environmental community action in an area planned as a biosphere reserve (T. Dayan).

## Visiting scientists at the national collections

The national collections of natural history at Tel Aviv University are an active biodiversity research infrastructure that is open to the entire scientific community. We always welcome visiting scientists at the national collections of natural history. Unfortunately, due to the current goings-on in the Middle East, fewer visitors from abroad came to study our collections in the academic year 2002/2003. However, we continue to send between 100 and 150 parcels of museum specimens abroad every year, to be studied by our colleagues. With everyone else, we hope that the hostilities cease, that our region becomes attractive once again to tourists from the international community, and that we can host more visiting scientists in our national collections of natural history.

Date	Name	Institute	Country	Taxonomic
				group
2002 Jan	U. Bar-Ze'ev		Israel	Mollusca
2002 Jan	A. Gorzalczany	Israel Antiquities Authority	Israel	Mollusca
2002 Feb	O. Gon	Rhodes University	South	Pisces
			Africa	
2002 Feb	E. Nartshuk	Zoological Institute	Russia	Entomology
2002 Feb	J. Bruzek	University of Bordeaux	France	Anthropology
2002 Dec	B. Shacham	Reptile Center	Israel	Reptilia
2002 May	A. Baranes	IUI - Eilat	Israel	Pisces
2002 May	A. Diamant	IOLR - Eilat	Israel	Pisces
2002 May	D. Golani	Hebrew University	Israel	Pisces
2002 May	A. Tsemel	Haifa University	Israel	Mollusca
2002	C.M. FitzGerald	University College London	England	Anthropology
May-June				
2002	J. Padiak	University of Toronto	Canada	Anthropology
May-June				
2002	F. Bocquentin	University of Bordeaux	France	Anthropology
June-Aug				
2002 Apr	H. Berger	Society for Protection of	Israel	Mammalia
		Nature		
2002 Apr	U. Shaines	Haifa University	Israel	Vertebrates
2002 May	J. Shimon	Air Force	Israel	Aves
2002 June	B. Galil	IOLR - Haifa	Israel	Mollusca
2002 June	O. Yacov	Seminar HaKibuzim	Israel	Entomology

Date	Name	Institute	Country	Taxonomic
				group
2002 June	J. Shimon	Air Force	Israel	Aves
2002 June	R. Yusef	Eilat Bird's Center	Israel	Aves
2002 July	M. Algoety		Israel	Mollusca
2002 Aug	M. Sade	Arcezoology	Israel	Mammalia
2002 Aug	U. Bar-Ze'ev		Israel	Mollusca
2002 Aug	A. Gelmn	Brithish school -Jerusalem	Israel	Anthropology
2002 Aug-	B.	University of Bordeaux	France	Anthropology
Sep	Vandermerch			
2002 Aug-	D. Ovadia	Echiluv Hospital	Israel	Anthropology
Nov				
2002 Sep	E. Shapira	Haifa University	Israel	Mammalia
2002 Oct	F. Rocheli	Weizmann Institute	Israel	Mollusca
2002 Oct	L. Stoller-	Technion	Israel	Mollusca
	Cuvari			
2002 Oct	J. Shimon	Air Force	Israel	Aves
2002 Nov	E. Scheffer	IOLR - Haifa	Israel	Mollusca
2002 Nov	Z. Geller		Israel	Mollusca
2002 Nov	E. Ben David		Israel	Mollusca
2002 Dec	M. Kütük	Qukurova University	Turkey	Entomology
2002 Dec	J. Shimon	Air Force	Israel	Aves
2002-2003	N. Lev-Tuv	Hebrew University	Israel	Anthropology
2002-2003	Y. Nagar	Israel Antiquity Authority	Israel	Anthropology
2003-2004	V. Russeva	Bulgarian Academy of Sciences	Bulgaria	Anthropology
2003 Jan	L. Stoller-	Technion	Israel	Mollusca
2000 000	Cuvari		101401	1,10110,500
2003 Mar	K. Hertz		Israel	Mollusca
2003 Mar	U. Bar-Ze'ev		Israel	Mollusca
2003 Mar	E. Heiman		Israel	Mollusca
2003 Mar	J. Shimon	Air Force	Israel	Aves
2003 May	U. Bar-Ze'ev		Israel	Mollusca
2003 May	L. Stoller-	Technion	Israel	Mollusca
•	Cuvari			
2003 May	R. Balzik	Bar Ilan University	Israel	Aves
2003 May	A. Baranes	IUI - Eilat	Israel	Pisces
2003 May	A. Diamant	IOLR - Eilat	Israel	Pisces
2003 May	D. Golani	Hebrew University	Israel	Pisces
2003 June	N. Sapir	Beer Sheva University	Israel	Aves
2003 June	E. Zorim	Beer Sheva University	Israel	Aves

Date	Name	Institute	Country	Taxonomic
				group
2003 June	L. Stoller-Cuvari	Technion	Israel	Mollusca
2003 June	T. Kurtz		Israel	Mollusca
2003 June	J. Votypka	Charles University	Czech	Entomology
			Repuplic	
2003 July	S. Raz	Haifa University	Israel	Mollusca
2003 July	M. Black	Duke University	USA	Anthropology
2003 Aug	D. Gnatelli-	Ohio state University	USA	Anthropology
	Steinberg			
2003 Aug	U. Bar-Ze'ev		Israel	Mollusca
2003 Sep	U. Bar-Ze'ev		Israel	Mollusca
2003 Sep	Y. Nagy		Israel	Mollusca
2003 Sep	Einav	Haifa University	Israel	Mollusca
2003 Oct	U. Bar-Ze'ev		Israel	Mollusca
2003 Oct	R. Rabinovich	Hebrew University	Israel	Mammalia
2003 Oct	A. Terkel	Safari	Israel	Mammalia
2003 Nov	R. Rabinovich	Hebrew University	Israel	Mammalia
2003 Nov	Y. Metzkel		Israel	Aves
2003 Nov	Z. Arad	Technion	Israel	Aves
2003 Nov	A. Gorski	Hebrew University	Israel	Mammalia
2003 Nov	J.B. McCansland	Binghamton University	USA	Anthropology
	Gaines			
2003 Dec	U. Bar-Ze'ev		Israel	Mollusca