Faculty of Life Sciences – Department of Zoology, Department of Plant Sciences
Faculty of Medicine – Department of Anatomy and Anthropology

The National Collections of Natural History
Tel Aviv University

Annual Report 2004/2005

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Introduction

We are happy to present the third in our new series of Annual Reports of the National Collections of Natural History at Tel Aviv University. It 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 2004/2005 academic year.

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.

Ours is a multidisciplinary project, enjoining members of the George S. Wise Faculty of Life Science (Departments of Zoology and Plant Sciences) 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.

The past year was the first in many in which we enjoyed the financial support towards maintaining the collections from the Planning and Grants Committee of the Council of Higher Education of Israel (Vatat). These funds, crucial for collections maintenance and development, were provided based on the recommendations of the Israel Academy of Sciences and Humanities. The Academy has previously recommended that our collections be declared national
collections and that the Planning and Grants Committee provide annual maintenance support as well as part academic positions so as to encourage the university to hire the next generation of curators. Moreover, a National Steering Committee was established by the Israel Academy of Sciences and Humanities to oversee the collections' development and the use of public funds. This steering committee is already active and we take an active part in it.

Two years ago the Chair of the Board of Governors of Tel Aviv University, Mr. Michael Steinhardt, has very generously pledged 5 million dollars for the development of a National Museum of Natural History at Tel Aviv University. In the past year another foundation has joined in with a generous pledge of 2.5 million dollars. Our founding father, the late Prof. Mendelssohn, has left us a more modest sum in his will and the sum total is an excellent springboard for this ambitious project. With Vatat support for university buildings we can definitely embark on building this ambitious project.

With the generous help of a foundation we updated and improved our building program last year, and took an active part in a Program Committee for the museum building, chaired by Prof. Hagit Messer-Yaron, TAU Vice President for Research and Development, and dedicated to developing the program of a joint building with two wings, the other being that of the Porter School of Environmental Studies. This committee has recently concluded its work and presented its conclusions to TAU governance.

The Faculty of Life Sciences at Tel Aviv University has a longstanding tradition of service to the Israeli school system. To this day we continue with this tradition, and Tel Aviv University has established "Nature Campus" - our education and public program whose activities take advantage of Tel Aviv University's unique research infrastructure, the I. Meier Segals Zoological Garden, the botanic gardens, and the teaching 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. In the past year we celebrated the fifth birthday of Nature Campus, our public program, and produced its first Nature Campus Five Year Report. Viewing its development and its scope and breadth of activities in the past years, we are sure that we will continue to enjoy and take pride in the progress of Nature Campus.

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. Our collections have been used by numerous scientists in the past academic year. They have promoted the research of many TAU scientists from the Faculties of Life Sciences, Medicine, and Humanities. About 80 TAU graduate students enrolled during the past year have used them in their theses or doctoral dissertations, with diverse research topics ranging from the behavioral responses of rodents to predation pressure to identifying alien invasive ant species of Israel; from understanding the functional morphology of early humans to studying the taxonomy and biogeography of various insects; from understanding patterns of terrestrial biodiversity to studying ancient economies; from identifying taxa from which biologically active compounds can be extracted for the pharmaceutical industry, to predicting the response of various species to different climate change scenarios. Moreover, numerous scientists from other institutions in Israel and abroad have used our collections, our taxonomic expertise, and our databases. Thus our contribution to studying the region’s biodiversity has been highly significant.

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 we are particularly happy that in the past few years the SPNI has chosen to conduct part of its training course for new guides at Tel Aviv University, with Nature Campus. We feel that this training period enhances the strong links and academic support our scientists provide to nature conservation in Israel. 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. 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. Many members are very active in conservation and monitoring projects and on boards of public and environmental organizations. Our report lists some of these activities.

This joy at our progress is mixed with sadness. Miriam Rothschild, an original, creative, world famous scientist and distinguished member of our International Scientific Advisory Board has passed away. Shula Navon, a special and faithful friend, passed away following a serious illness. For almost a decade her wisdom, thoughtfulness, and kindness guided us time and again. We miss her sorely.

Here we share with you the progress made in the past academic year 2004/2005.
International Scientific Advisory Board

Vicki Buchsbaum, Pearse Institute of Marine Sciences, University of California, Santa Cruz, USA

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

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

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

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

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

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

Edward O. Wilson, Museum of Comparative Zoology, Harvard University, Cambridge, MA, USA
**Nature Campus Steering Committee**

Yoel Kloog, Dean of Life Sciences, Chair

Iris London-Zolty, Coordinator

Lea Pais, Director of the Research Authority

Amit Striet, Director of the Finance Department

Sigal Adar, Director of Friends of TAU

Abraham Hefetz, Head of the Department of Zoology

Daniel Chamovitz, Head of the Department of Plant Sciences

Yoel Rak, Head of the Department of Anatomy and Anthropology

Tamar Dayan, Director of the Natural History Collections

Arnon Lotem, Director of the I. Meier Segals Garden for Zoological Research

Jacob Garti, Director of the Botanic Gardens
Nature Campus Science Committee

Daniel Chamovitz, Head of the Department of Plant Sciences, Faculty of Life Sciences

Israel Finkelstein, the Jacob M. Alkow Department of Archaeology and Ancient Near Eastern Cultures, Faculty of Humanities

Jonathan M. Gershoni, Head of the Department of Cell Research and Immunology, Faculty of Life Sciences

Yoav Gothilf, Department of Neurobiochemistry, Faculty of Life Sciences

Abraham Hefetz, Head of the Department of Zoology, Faculty of Life Sciences

Ayala Hochman, Department of Biochemistry, Faculty of Life Sciences

Arnon Lotem, Department of Zoology, Faculty of Life Sciences

Rafi Nachmias, Constantiner School of Education, Faculty of Humanities

Yoel Rak, Head of the Department of Anatomy and Anthropology, Faculty of Medicine

Eliora Ron, Molecular Microbiology and Biotechnology, Faculty of Life Sciences

Marcelo Sternberg, Department of Plant Sciences, Faculty of Life Sciences

Tamar Dayan, Department of Zoology, Faculty of Life Sciences
**Museum staff**

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<thead>
<tr>
<th>Name</th>
<th>Department</th>
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<tbody>
<tr>
<td>Tamar Dayan</td>
<td>Department of Zoology</td>
<td>Director</td>
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<tr>
<td><strong>Curators</strong> (TAU faculty members)</td>
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<tr>
<td>Yoram Yom-Tov</td>
<td>Department of Zoology</td>
<td>Higher Vertebrates</td>
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<tr>
<td>Yehuda Benayahu</td>
<td>Department of Zoology</td>
<td>Invertebrates</td>
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<tr>
<td>Amnon Freidberg</td>
<td>Department of Zoology</td>
<td>Entomology</td>
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<tr>
<td>Yehoshua Kugler (emeritus)</td>
<td>Department of Zoology</td>
<td>Entomology</td>
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<tr>
<td>Menachem Goren</td>
<td>Department of Zoology</td>
<td>Fishes</td>
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<tr>
<td>Lev Fishelson (emeritus)</td>
<td>Department of Zoology</td>
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<tr>
<td>Dan Graur</td>
<td>Department of Zoology</td>
<td>Molecular Systematics</td>
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<tr>
<td>Dorothée Huchon</td>
<td>Department of Zoology</td>
<td>Molecular Systematics</td>
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<tr>
<td>Baruch Arensburg (emeritus)</td>
<td>Department of Anatomy and Anthropology</td>
<td>Physical Anthropology</td>
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<tr>
<td>Yoel Rak</td>
<td>Department of Anatomy and Anthropology</td>
<td>Physical Anthropology</td>
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<tr>
<td>Israel Hershkovitz</td>
<td>Department of Anatomy and Anthropology</td>
<td>Physical Anthropology</td>
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<td>Nissan Binyamini (emeritus)</td>
<td>Department of Plant Sciences</td>
<td>Fungi</td>
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<td>Margalith Galun (emeritus)</td>
<td>Department of Plant Sciences</td>
<td>Lichens</td>
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<td>Jacob Garty</td>
<td>Department of Plant Sciences</td>
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<tr>
<td>Ya'akov Lipkin (emeritus)</td>
<td>Department of Plant Sciences</td>
<td>Algae</td>
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**Curators** (TAU faculty members; new immigrants in various absorption schemes)

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<tr>
<th>Name</th>
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<tr>
<td>Vladimir Chikatunov</td>
<td></td>
<td>Coleoptera</td>
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<td>Vassily Kravchenko</td>
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<td>Lepidoptera</td>
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<td>Sergei Zonstein</td>
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<td>Arachnidae</td>
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<td>Andy Lerer</td>
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<td>Diptera</td>
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<td>Yuri Katz</td>
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<td>Paleontology</td>
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<tr>
<td>Olga Orlov-Labkovsky</td>
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<td>Micropaleontology</td>
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**Associate curators** (faculty members)

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<tr>
<th>Name</th>
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<tr>
<td>Yossi Loya</td>
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<td>Stony Corals</td>
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<td>Micha Ilan</td>
<td></td>
<td>Sponges</td>
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<tr>
<td>Dan Gerling</td>
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<td>Hymenoptera</td>
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<tr>
<td>Abraham Hefetz</td>
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<td>Entomology</td>
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<tr>
<td>Bella Galil</td>
<td>Israel Oceanographic &amp; Limnological Research - Haifa</td>
<td>Crustaceans</td>
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<tr>
<td>Danny Simon</td>
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<td>Formicidae</td>
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<tr>
<td>Ilan Yarom</td>
<td>Hazeva Research &amp; Development</td>
<td>Diptera</td>
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<tr>
<td>Eli Geffen</td>
<td></td>
<td>Molecular Systematics</td>
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<tr>
<td>Ofer Mokady</td>
<td></td>
<td>Molecular Systematics</td>
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<tr>
<td>Elazar Kochva (emeritus)</td>
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<td>Herpetology</td>
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**Technical assistants** (assistant curators, collection managers, technicians, taxidermist)

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<tr>
<th>Name</th>
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<tr>
<td>Ann Belinsky</td>
<td>Department of Zoology</td>
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<tr>
<td>Revital Ben-David-Zaslow, PhD</td>
<td>Department of Zoology</td>
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<tr>
<td>Vered Eshed, PhD</td>
<td>Department of Anatomy &amp; Anthropology</td>
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<tr>
<td>Tova Feller</td>
<td>Department of Zoology</td>
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</table>
Leonid Friedman  Department of Zoology
Igor Gavrilov  Department of Zoology
Ermin Ionescu, PhD  Department of Zoology
Henk Mienis  Department of Zoology
Reuven Landsman  Department of Zoology
Tzilla Shariv  Department of Zoology
Alex Shlagman  Department of Zoology
Tirza Stern  Department of Zoology
Chemda Zigman  Department of Zoology

‘Nature Campus’
Yael Gavrieli, PhD  Director
Anat Feldman  Content Development
Neta Servi  Public Programs Coordinator
Public programs - Nature Campus

Nature Campus advances communication of science about the natural history and living environment of Israel to children, teachers, nature guides, and the general public. In some programs, natural history collections play a key role, while in other programs artifacts such as skulls, bones, nests, eggs, live insects and stuffed animals are integrated into the learning experience.

Programs based on the natural history collections:

Public activities:

- Guided Tours. The program offers a two-hour activity at the I. Meier Segals Garden for Zoological Research or the Botanic Gardens. During 2004/2005, the Gardens played host to 2,800 visitors comprised of groups of schoolchildren ages 6-18, teachers, nature guides, students from other institutions of higher education, and other organized groups.

- Science Days. The program offers a four-hour activity for classes at the Natural History Collections (the "Museum Class") as well as at the Gardens. Most of the activity at the collections is based on the collection's artifacts. The themes that are covered are diverse and 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 Winter Pools. During 2004/2005, 2,600 schoolchildren participated in these programs.

- Science Camps. Science camps are being held during the Hannukah, Passover and summer school vacations. The camp, a 4-5 days program, offers a scientific exploration of the biosphere for primary school children. Each day is focused on a major phenomenon or process in the
living world, for example the food web, behavior and communication, and adaptation. During 2004/2005, 170 children participated in the program.

- Professional Development and Training Days. The 6-10 hour training day offers conservation biology enrichment program for teachers and environmental organizations staff. The professional training program is tailored according to the participants' requirements. During 2004/2005, 650 professionals participated in training days.

**On-Line resources**

Nature Campus website – [www.campusteva.tau.ac.il](http://www.campusteva.tau.ac.il) - outreach to the public, and offers, in a language understandable to all, the riches of scientific research based on the Natural History Collections (Learning resources section). During 2004/2005, the website was redesigned in order to meet the growing demands of the activities and the content that was developed. This year, the issue of invasive species was in the spotlight and got a special section (Invasive species section).

**A National Action Plan for Biodiversity Education and Public Awareness**

Part of the effort to devise a National Biodiversity Action Plan, Yael Gavrieli and Anat Feldman from Nature Campus coordinated the proceedings of the Education and Public Awareness Committee and wrote the National Action Plan recommendation in this regard. Prominent in the document are the recommendations concerning the place of natural history collections as an infrastructure for making a natural history museum and as a foundation for the communication of biodiversity science and sustainable development issues to the public.
**Progress at the natural history collections**

Natural history collections are dynamic archives that record biodiversity. As such, they grow annually by new collecting activities and by incorporating smaller private or institutional collections. The collecting activities comprise focused collecting expeditions as well as by the products of numerous field studies carried out by scientists and their graduate students. Moreover, the Israel Nature and Parks Authority rangers collect vertebrate carcasses for the collections. Collecting, incorporating the collections, preserving and digitizing them, as well as managing the collections, the data, and the network of collectors and colleagues, is a formidable job that falls up on the shoulders of the curators, and, even more so, on those of the collections managers, technical assistants, and taxidermist. We are fortunate to have a group of active, knowledgeable, and dedicated technical staff members, who do their best, in the nearly impossible physical conditions and under-staffing, to preserve and expand this priceless record of biodiversity, and to help promote scientific biodiversity research. Their work is highly specialized, their knowledge priceless; almost all have academic degrees, most have either a PhD or an MSc, and all are the crucial backbone of the national collections of natural history at Tel Aviv University.

Our overworked collections managers have also produced this report, and we are particularly grateful to the work of Dr. Revital Ben-David-Zaslow in compiling it. Here they also report a little about the behind-the-scenes of managing the collections: collections news, collecting trips and expeditions, and new collections are reported here in a nutshell.
Collections news – A word from our collection managers

During the academic year 2004/2005 we continued our day-to-day activities at the Natural History Collections. The collection activity comprises: collecting, preserving, labeling, identifying, digitally recording the new specimens, and maintaining the existing collections. At the same time we maintain a strong relationship with the scientific community in Israel and abroad. As part of it, The Natural History Collections ship scientific material including specimens, tissue cultures for molecular researches, and electronic data to museums and individual researchers in a variety of countries. We continue to assist graduate students, academic courses, and “Nature Campus” activities.

Throughout the past year thousands of new specimens belonging to different taxonomic groups have been incorporated into the Natural History Collections. The reptile collection, which was digitized in the past academic year (see the 2003/2004 Annual Report), is now active again and almost 100 new specimens have been added. Work on the amphibian collection is continuing and we are now able to receive new material collected by Dr. Sarig Gafni and students of Prof. Avital Gasith.

As in previous years, we have worked hard to advance digital cataloguing of the dry vertebrate collection. Work on the mammals is almost complete. Some 100 new specimens have been preserved and added. This includes specimens collected by rangers from the Israel Nature and Parks Authority. The vertebrate tissue collection has been arranged and digitalized, and new tissues were added. It now numbers over 300 samples.

Collections made in various Indo Pacific sites (see below: Collection trips) by Prof. Yehuda Benayahu have been sorted, preserved, and digitized for future research and identification. The material includes soft corals, sea anemones, sponges, tunicates nudibranchs, and other invertebrates. As a routine, tissue
samples for molecular analysis were taken from most of the soft corals specimens and preserved accordingly.

Comprehensive collections of coral reef invertebrates were conducted by Prof. Yehuda Benayahu in various Indo Pacific sites. In Elat we initiated the first ever done deep reef (50—70 m) soft coral survey. Collections were carried out in Tanzania and Kenya where over a thousand samples were collected. In addition, a field trip was conducted to Japan and Taiwan where hundreds of soft coral samples were yielded, thus significantly expanding previous surveys in these two regions. Collections were also conducted in Hawaii where a joint project on an invasive soft coral and molecular phylogeny of soft corals was initiated. A joint expedition with Eritrean colleagues to Dahlak Archipelago was carried out as part of the USAID CDR funded project entitled: “Scientifically based framework for conserving and monitoring the Eritrean coral-reefs”.

The routine work at the insect collection includes absorption and integration of donated collections; labeling and sorting of specimens brought in from collecting trips; identification and research of selected groups (including about 35 shipments to specialists, mostly overseas, during 2005); preservation activities, such as renewal of naphthalene. Special treatment included cases of damage caused by mold and pests. The insect collection comprises millions of specimens that are not yet digitized. As in past years, an effort has been made to accelerate digitization of this collection. This year we focused on the Hemiptera (1000 specimens, representing 58 species) and the Parasitica (1500 specimens, representing 201 species) up-date of taxonomic status (valid names, synonyms) for Chalcidoidea and Evaniidae. Other families we focused on this year are the Tingidae, Rhopalidae, and the Anthocoridae. New insects caught are immediately given a catalog number and digitized. In the present year about 1000 new insects were added to the collection.
We continue the fruitful cooperation with Tel Aviv University students collecting samples in the field. Collections made by students are immediately digitized in order to facilitate easy transfer of specimens to the museum in the near future. Cooperation between students and staff of the collections is excellent. We give the students support in all fields including preservation, identification, labeling, and cataloguing. Tirza Stern developed a unique data base for this purpose and continues to work with the students adjusting it to their special needs. The students of Prof. Avital Gasith are in the process of merging their collections, consisting of freshwater invertebrates caught in various rivers in Israel, with the National Collections. Together with the samples, the collection managers are provided with the digitized data base to assist their incorporation into the National Collection and help avoid mistakes. Students of Prof. Tamar Dayan transferred a very large collection of mammals, amphibians, reptiles, and arthropods caught in pitfall traps to the museum. The vertebrates among them have been preserved, identified, digitized, and labeled; the invertebrates were preserved and sorted for future identification.

**Progress Report for the Mollusc Collection 2004-2005**

Traditionally the mollusc collection is divided into a dry collection of empty, recent, and fossil shells and a wet collection of live collected material. While the wet collection was arranged from the beginning in a strict systematic order, the dry collection consisted until recently of at least 9 separate major collections and an undisclosed number of very small collections:

- The local land- and freshwater molluscs;
- The Mediterranean marine molluscs;
- The Red Sea marine molluscs;
- The foreign land- and freshwater molluscs;
- The foreign marine molluscs;
- The D.A. Visker collection;
- The A. Hadar collection;

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- The V. (H.) Treves collection;
- The I. (J.) Yaron collection;

as well as various minor collections donated to the university.

In order to save space and time, the decision was taken to arrange the dry collection also in a strict systematic order. We are now in the progress of rearranging all the separate collections into a single entity. In order to carry out this immense job, all the samples in the so-called extra-university collections (the foreign material and all the donations) are now being reidentified and digitized before they are transferred to the “new” general collection. All the new, neatly printed labels will carry the name of the original collection. About 50% of the collections of Visker, Hadar, and Treves have been processed so far in this way.

The fossil material, mainly part of the Visker-collection, will be transferred at a later stage to the palaeontological collection. The latter consists mainly of the collection donated by H. Bytinski-Salz. The constantly growing archaeomalacological collection is being kept separately from both the recent and palaeontological collection, and is arranged according to site.

Services
The mollusc collection serves not only as a permanent storehouse for malacological samples, but the data retrieved from these samples may yield a wealth of information in the field of biodiversity, geographical distribution including Lessepsian migration, extinction, introduction of exotics, and numerous other subjects. In the past academic year much digital information was supplied for biodiversity projects carried out on behalf of the Israel Nature Reserves and National Parks Authority.

Taxonomic expertise, i.e. identification of mollusks, has been provided to various groups of interested parties such as:
- The Plant Protection and Inspection Services (PPIS) of the Ministry of Agriculture, Bet Dagan. They asked for identifications of land and freshwater molluscs intercepted by their inspectors on agricultural and horticultural products entering or leaving Israel or detected by them in nurseries or hothouses. These samples were received from Dr. Shmuel Moran and are now permanently stored in the mollusc collection.

- Various M.Sc. and Ph.D. students the Tel Aviv University and of other institutions of higher education in Israel. Most of their material was donated to the collection or will be donated in the near future after the completion of their research project.

- Archaeologists of the Tel Aviv University, other institutes of higher education, and the Israel Antiquities Authority. They asked for the identification of and a report on their archaeomalacological finds. In several cases this material was lodged in the mollusc collection.

- Private shell collectors. Duplicate shells or unique finds have been received from these collectors for the mollusc collection.

All these connections turned out to be highly fruitful to both parties.
Collecting trips and expeditions

A dynamic archive, our natural history collections grow annually through donations, research projects, and collecting trips and expeditions. Some of the collecting projects are ongoing; for example, Dan Gerling continues to collect whiteflies and their natural enemies in Israel (Judean foothills and the Galilee) and in Uganda (a total of two field trips). Here we report some of the new collecting activities of our scientists.

Patterns of Biodiversity in the Judean Foothills

Tamar Dayan

In the past few years Tamar Dayan's graduate students (Yael Mandelik, Tal Levanony, Ehud Columbus, and Ornit Hall) have been carrying out research on patterns of biodiversity in natural and in human-dominated landscapes in the Judean Foothills. This area is rich and varied in terms of its biodiversity, and there are regional plans for a biosphere reserve. The research, funded by the Beracha Foundation, the Ministry of the Environment, and the KKL, was aimed at developing tools for biodiversity assessment and planning decision making, developing indicators for biodiversity, and understanding the role of afforested and agricultural landscapes in supporting biodiversity. The ultimate goal, of course, is to develop biodiversity friendly forestry and agriculture in this region. Since so much of the terrestrial earth's ecosystems has been transformed by humans, managing these newly emergent landscapes in an environmentally and biodiversity friendly manner is a focus of much research worldwide. This applied research was carried out in close collaboration with Drs. Vladimir Chikatunov, Vassily Kravchenko, and Sergei Zonstein, new immigrant curators, each an expert on an arthropod taxon (beetles, moths, and spiders, respectively). Needless to say, their expertise is crucial for studying patterns of biodiversity that include the largest component – arthropods. All the arthropods sampled for
this study are being incorporated into the natural history collections by Arieh Landsman, where they can be used for future research. This is a sizable collection, the outcome of several years of study, and we are finding it hard to store it properly, in the current conditions. We hope that building soon begins and that it can be safely housed for the benefit of future scientists.

**Biodiversity surveys of the Kenyan and Tanzanian reefs**

Yehuda Benayahu

Since 2000 six annual field trips have been conducted to the coral reefs of Kenya and Pemba Island (Tanzania). Prof. Yehuda Benayahu led the trips accompanied by Dr. Revital Ben-David-Zaslow, Shimrit Perkol, Tali Yacobovich, Orit Barnea, Mati Halperin, and Ido Sella (all from Tel Aviv University), and 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. Extensive collections were made using a boat, and a variety of habitats were surveyed in detail by SCUBA diving on various reef habitats. Dozens of dives resulted in approximately 3,000 samples being collected, comprising most of the species of these groups found on the reefs. This was the first ever survey aimed at evaluating the biodiversity of these taxonomic groups on the Kenyan and Pemba Island reefs. The findings indicate that most of these 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, 100 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. 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).

**Collecting trips of the Entomology**

**Europe trip (Amnon Freidberg).** The aims of this trip were: 1) to collect immature stages of the European population of the fruit fly, *Goniglossum wiedemannii* (Tephritidae: Carpomyina), for a biotaxonomic study of this and related species conducted by the M.Sc. student, Larisa Lerner-Alfi, under the supervision of Amnon Freidberg. 2) To collect other Tephritidae, other flies and weevils for on-going projects of scientists at TAU. To increase the chances of finding the apparently rare *G. wiedemannii*, a search was conducted along much of Italy and across Slovenia and Hungary. Fortunately, with the help of an Italian botanist, Mr. Giorgio Pezzi, an infested population of the host plant, *Bryonia dioica* (Cucurbitaceae) was discovered in northern Italy, and numerous specimens of the fly were obtained. These have already been sequenced genetically, and puparia are reared for possible breeding experiments (with the Israeli population) next year. The collection of other flies and weevils was likewise successful, resulting in about 1,000 specimens brought back to the TAU collection.
Africa trip (Amnon Freidberg). The aims of this trip were: 1) to collect and observe Schistopterini flies (Tephritidae), primarily in Kenya, for the Ph.D. project of Liat Gahanama. 2) To collect Tephrellini (Tephritidae) for a joint molecular taxonomy and phylogenetic project on this tribe (jointly with Dr. H.-Y. Han (S. Korea). 3) to collect other flies and weevils for on-going projects. The first two weeks were devoted mostly to achieve the first aim, although progress was also made in the two other aims. This was very successful, as all the relevant Schistopterini species were found, observed and reared, and both adults and immatures were collected for traditional and molecular analyses. Numerous species of Tephrellini and weevils were also collected. Leonid and Amnon continued to Ethiopia where they continued to collect (Leonid for three more days; Amnon for two and half weeks) the same groups primarily around the capital, Addis Abeba, and also along the northern 'Historic Route', where several new species of flies and weevils were collected. Of special interest were collections on and rearing from flowerheads of various species of *Echinops* (Asteraceae). This genus of rather conspicuous thistles contains 120 species, primarily distributed in central Asia (six species in Israel). Twenty species are known from tropical Africa, 12 of which from *Ethiopia* (several endemic to this country). A very distinctive genus of *Tephritidae*, Tephritomyia, breeds in the flowerheads of Echinops, and almost all the species are known only from Africa. Amnon Freidberg is currently revising this genus. It was therefore a special challenge to find these endemic plants and collect and rear the flies from them. Indeed, about five species of *Echinops* were found during this trip, and about 5 species of *Tephritomyia* were obtained, at least two of which new to science and new to the reviser of this genus. This entire adventure resulted in some 7500 pinned specimens added to the TAU collection.

Cyprus trip (Leonid Friedman). In August 2005 I undertook a collecting trip to Cyprus, which lasted a week. The main goal was to collect an endemic Cypriot species of weevil, *Squamapion bifarium* (Apionidae), which I wanted to compare with the *Squamapion* sp. collected in Israel, which I suspected to be
a new species to science. *S. bifarium* was described by Balfour Browne in 1944 from about 20 specimens. The type series of *S. bifarium* was deposited by the author in the British Museum. I sent a request for a pair of paratypes, but to date has no replay. In Cyprus I visited the insect collection of the Ministry of Agriculture in Nicosia, and the private collection of Mr. C. Makris in Limassol, in order to find relevant specimens there, but only one old female in a very bad condition was found. I also studied other weevils in these collections and borrowed a few for a future study. While staying in Limassol I collected a few hours in the salt marshes. Then I went to the localities mentioned in the original description, in Troodos Mountains: along the Krios River, in Pano Platres and Mesopotamos and succeeded to collect about 50 specimens of *S. bifarium*, together with about 500 other insect specimens.
New collections

The Isopod and other Terrestrial Invertebrate Collection of Prof. Michael R. Warburg

Revital Ben-David-Zaslow

Prof. Michael R. Warburg is a leading biologist who has spent the past 55 years studying a variety of subjects pertaining to the ecology and biodiversity of amphibians and terrestrial invertebrates such as mollusks, ticks and isopods. He was born in 1931 in Berlin, Germany. At the age of 3, his family immigrated to Palestine. In 1947 at the age of 16 he joined the "HaGana" to "Khativat Hanegev" and 3 years later the Police Force in Jerusalem. Prof. Warburg finished his M.Sc. dissertations at the Hebrew University, majoring in Zoology, Botany, and Parasitology, and his Ph.D. dissertation at Yale University, USA, at the Zoology Department. He returned to Israel in 1960 where he resumed his position as a Research Fellow at the Department of Zoology of Tel Aviv University. Later on he spent 2 years at the University of Adelaide, South Australia. After his return to Israel in 1965 he joined the Institute for Biological Research at Ness-Ziona. In 1972 he was appointed Associate Professor in the Biology Department of the Technion in Haifa. He retired officially in 1999, but continued working in the field of Terrestrial Invertebrates with a unique attention to Isopods.

Prof. Warburg published over 170 papers (37 on isopods), more than 75 abstracts, and 2 Books (one on isopods). His major effort to list the Isopods of Israel was published in his book: "Evolutionary Biology of Land Isopods, Springer 159 pp." published in 1993. In appreciation of his outstanding work in the field of Isopods one of his foreign colleagues described a new species from Israel in his honor: Chaetophiloscia warburgi Schmalfuss, 1991.
Prof. Michael R. Warburg recently donated his Isopod and other Terrestrial Invertebrate Collection to the National Collections of Natural History. This collection constitutes one of the most important private collections related to the Terrestrial Invertebrates of Israel. It contains thousands of items, collected mostly from various places in Israel and abroad, beginning in 1960. Each specimen is supplied with full collection data and in part is identified to the species level. This collection gives us an opportunity to study the unique fauna of the Isopods of Israel.

The principal new acquisitions for the National Entomology Collection
Amnon Freidberg

- Unique collection of Acarina of Prof. E. Swirsky, transferred from the Volcani Center. Not treated.
- A large collection of grasshoppers and long-horn grasshoppers of Prof. M. Pener, transferred from the Hebrew University and integrated into the TAU collections.
- A small collection of parasitic wasps (Hymenoptera: Parasitica) of Dr. Wolf Kuslitzyk, in the process of integration into the TAU collection.
- A reprint collection (about 1000) of taxonomy of midges (Ceratopogonidae) and related groups of Dr. Y. Barveman.

The principal new acquisitions for the National Mollusc Collection
Henk K. Mienis, Revital Ben-David-Zaslow and Chemda Zigman

New material arrives almost weekly. Henk Mienis is responsible for carrying out the identifications, which are followed by initial preparations for permanent storage either in the dry or wet collection. Revital Ben-David-Zaslow checks all the relative data accompanying the individual dry samples for spelling errors in geographical names and any additional data, while Chemda Zigman carries out the same work for the wet material. Both finish this process by entering all the
relevant information in the computer, followed by printing the sample labels and placing the material on the right spot in the collection.

During the academic year 2004/2005 new material has been received from the following persons:

<table>
<thead>
<tr>
<th>name</th>
<th>Brief description of the material</th>
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<tbody>
<tr>
<td>U. Avner</td>
<td>Freshwater molluscs from excavations in the Arava Valley</td>
</tr>
<tr>
<td>R. Ben-David-Zaslow</td>
<td>Marine molluscs from the Rosh HaNiqra-Akhziv project</td>
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<tr>
<td>J. Dray</td>
<td>Freshwater molluscs from Roman Caesarea</td>
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<tr>
<td>B. Galil</td>
<td>Marine molluscs from the Rosh HaNiqra-Akhziv project</td>
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<tr>
<td>M. Goren</td>
<td>Marine molluscs from the Rosh HaNiqra-Akhziv project</td>
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<tr>
<td>J. Grego</td>
<td>Paratypes of recently described Clausiliidae from Peru</td>
</tr>
<tr>
<td>G. Hadas</td>
<td>Molluscs from an excavation near En Gedi</td>
</tr>
<tr>
<td>M. Keppens</td>
<td>Land and freshwater molluscs from the Botanical Garden in Gent, Belgium</td>
</tr>
<tr>
<td>Z. Lewy</td>
<td>Freshwater molluscs from an excavation near Akhziv</td>
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<tr>
<td>H. Lubinevsky</td>
<td>Marine molluscs from the Mediterranean coast of Israel</td>
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<tr>
<td>W. Maassen</td>
<td>Land and freshwater molluscs from former Yugoslavia</td>
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<tr>
<td>H.K. Mienis</td>
<td>Land and freshwater molluscs from Israel and the Netherlands; Miscellaneous world wide material from ex.-coll. Mienis</td>
</tr>
<tr>
<td>Sh. Moran</td>
<td>Land and freshwater molluscs intercepted by inspectors of the Plant Protection and Inspection Services, Ministry of Agriculture</td>
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<tr>
<td>R. Ortal</td>
<td>Marine molluscs from the Rosh HaNiqra-Akhziv project</td>
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<tr>
<td>A.A. Ramos</td>
<td>Marine molluscs from the Rosh HaNiqra-Akhziv project</td>
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<tr>
<td>Y. Sharon</td>
<td>Marine molluscs Mediterranean coast of Israel</td>
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<tr>
<td>Y. Sinai</td>
<td>Landsnails from Israel</td>
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Chapters in the history of the National Collections of Natural History of Tel Aviv University

We continue in our tradition of honoring our scientific forefathers.

**Alexander Barash (1900-1995) and his malacological activities**

H.K. Mienis

Alexander Barash was born on 22 July 1900 in Berdichev, Ukraine. He attended at first a Jewish elementary school, a so-called “cheder”, and later on the High School for Commerce in Berdivech. This was not such a surprise because his father was a merchant. He graduated from the latter institute in 1920.

In 1922 the whole family, his parents Izchak and Lea and their two children Alexander and Chava, managed to fulfill the dream of so many Jews living in an Eastern European “shtetl” and settled in Palestine, the Promised Land.

A construction worker who became a zoologist

Initially Alexander began to work as a construction worker, but not satisfied with this highly physical work he started to attend the teacher’s seminary in Jerusalem, from which he graduated in 1925. In the same year he became a teacher at a school in Merchavia (Palestine).

After four years he decided to study biology at the University of Berlin. He completed his Ph.D.-studies in 1934 with the following thesis on the systematics of Lepidoptera: “Natuerlich Gruppierung der mittel-europaeischen Coleophoriden (Lep.) auf Grund der Struktur der maennlichen...
Kopulationsapparate und ihre Beziehung zum Sackbau der Raupe und zum System der Naehrplanzen”, which study was published in the German Entomological Journal (1934, nos. I-II: 1-116).

Before he went to Germany he married Zilpa Goldin, who passed away on 13 February 1980. They had two children: a son Isaac ("Jitzchak"), who became a Professor in Plant Physiology at the Department of Botany of the Tel Aviv University and in Plant Pathology at the Volcani Center, Bet Dagan, and a daughter Amira (now Amira Reyer).

**His work as a zoologist**

After his return from Germany he started to teach biology at high schools and the teacher’s seminary in Tel Aviv. At the same time he was closely associated with the Biological Institute of Yehoshua Margolin in Yehuda Halevy Street in Tel Aviv. During those years he specialized in invertebrates and published many popular articles and textbooks in that field. They were the first of their kind in the Hebrew language. He became also more and more involved with the curriculum for biology at high schools and teacher’s seminars. Therefore it came not as a surprise when he was appointed the country’s supervisor for biology teaching.

Between 1951 and 1953 Barash played an important role in the establishment of the University Institute at Abu Kabir, which later became the Tel Aviv University. From the beginning he taught invertebrate zoology at these institutes. His interest was, however, not confined to the lower animals. Together with J.H. Hoofien, a banker of profession, but a herpetologist in his spare time, he wrote the first book in Hebrew on the Reptiles of Israel (1956), which saw not less than 12 reprints!

**His malacological interests**

Nobody knows exactly when Barash became interested in molluscs, however, judging from a publication in Hebrew (1938) concerning the behavior and
feeding of the predatory pseudo-slug *Daudebardia saulcyi* on earthworms, we may assume that it must have been quite soon after he returned from Germany.

Seven years passed before his second malacological paper saw the light. This time it was dealing with marine molluscs living on rocks. He co-authored that paper with Zippora Danin. Who could have imagined at that time that she should become his cooperator for 45 years sharing with him 37 publications on molluscs. Zippora acted also more-or-less as a kind of private secretary for Barash. Her flat in the Arlozoroff Street housed the major part of the Mediterranean molluscs of the Tel Aviv University and the extensive malacological library. At her apartment they worked quietly on their numerous publications. During that period they received also much help from Ezra Danin.

In the mid-seventies Barash found another female cooperator in the form of Zaida Zenziper, a biology teacher at the Teacher’s Seminar in Tel Aviv. She followed in the footsteps of Zippora Danin and co-authored another 14 malacological papers with Barash.

At the age of 70 he was still actively working in the field. A good example formed his participation in the expeditions to Rhodes and Cyprus organized by the Tel Aviv University. He astonished most of the much younger zoologists by his stamina and long working days.

Under the governance of Barash the university collection became especially rich in Eastern Mediterranean molluscs. After the initial sorting of the numerous dredged samples, which he received regularly from various marine biologists working at the Shiqmona Marine Laboratory, the micro-molluscs among the material were sent to specialists abroad for identification. In this way he established contacts with a large number of malacologists all over the world. They provided him with reliable identifications for all those tiny species in difficult groups like Rissoidae, Turridae and Pyramidellidae. However, sometimes these identifications caused also some problems, because now-and-
then the same material was sent to two specialists. More than once two different identifications were received for one and the same sample. Barash developed a unique way to “solve” that problem: both names were simply included in the various checklists. This mishap occurred also with the identifications carried out by the famous J.R. le Brockton Tomlin of the British Museum in London, who had identified most of the micro-shells in the collection of the Hebrew University of Jerusalem in the late thirties for Georg Haas. These identifications were copied from the original cards by Barash and Danin and were included in their various articles without checking the original material. These are the only mishaps Barash and his cooperators made during their involvement with molluscs for almost 60 years.

From a scientific point of view his masterpiece, coauthored by Zippora Danin, was without doubt the “Annotated list of Mediterranean molluscs of Israel and Sinai”, published by the Israel Academy of Sciences and Humanities. Unfortunately it was printed only 12 years after it had been submitted!

Most credit goes to Barash for popularizing the study of Mediterranean marine molluscs by writing numerous short articles, which found their way in the Hebrew press even before the establishment of the State of Israel. His “Field guide to the Mediterranean mollusca of Israel” (Barash & Danin, 1965), in fact an expanded Hebrew version of J. Arrecgros (1958): “Coquillages Marins”, is still in great demand 40 years after it was published. This in spite of the fact of the publication of a much more recent and more up-to-date book in Hebrew dealing with that subject: “Mediterranean molluscs of Israel” (Barash & Zenziper, 1991).

In the last years of his productive life Barash tried to write still a similar companion volume about the molluscs from the Red Sea in general and those from Elat in particular. However, due to increasing health problems his

Now, after 10 years, the name of Alexander Barash goes still hand in hand with the mollusc collection of the Tel Aviv University. Hopefully this legacy will remain so for still quite some time.

**The malacological publications of Alexander Barash (in chronological order)**

05. Barash, A. & Danin, Z., 1950. [Key for the identification of genera of marine shells from Palestine.] 18 pp. The Biological-Pedagogical Institute, Tel Aviv.
08. Barash, A. & Danin, Z., 1953. [Identification key for mollusc shells belonging to the more common genera and species of the Mediterranean beach of Israel.] 18 pp. The Biological-Pedagogical Institute, Tel Aviv.
46. Barash, A. & Danin, Z., 1982. Annotated list of the Mediterranean mollusca of Israel and Sinai. 568 pp. Tel Aviv University, Tel Aviv.

[………] = articles published in Hebrew

**Eponyms i.e. scientific names dedicated to Alexander Barash (in chronological order) and their current status:**

*Acanthochiton communis* forma *barashi* Leloup, 1969  
Current status: junior synonym of *Acanthochitona fascicularis* (Linnaeus, 1767)

*Gourmya (Gladiocerithium) argutum barashi* F. Nordsieck, 1972  
Current status: junior synonym of *Cerithium scabridum* Philippi, 1848

*Ringicula barashi* Di Geronimo, 1974  
Current status: junior synonym of *Ringicula conformis* Monterosato, 1877

*Timoclea barashi* Fischer-Piette, 1974  
Current status: junior synonym of *Tymoclea hypopta* (Sturany, 1899)

*Gymnotoplax barashi* Marcus, 1977  
Current status: junior synonym of *Pleurobranchus membranaceus* (Montagu, 1815)

*Mangiliella barashi* Van Aartsen & Fehr de Wal, 1978  
Current status: valid species.

*Odostomia barashi* Bogi & Galil, 2000  
Current status: valid species.

*Graphis barashi* van Aartsen, 2002  
Current status: valid species.
Chanan Lewinsohn (1926-1983) - Addendum

L.B. Holthuis & H.K. Mienis

Since the publication of the obituary and bibliography of Prof. Chanan Lewinsohn in the Annual Report 2003/2004 we have come across several additional articles written by him in Hebrew. One of these papers focuses on the Mediterranean Sand or Ghost crab Ocypode cursor (Linnaeus, 1758) and forms actually the first article devoted by Chanan to the Decapoda, his favorite group among the Crustaceans.

We can also add another eponym to the list of scientific names given in his honor.

Additional publications by Chanan Lewinsohn

---Lewinsohn, Ch., 1959. [Observations concerning the life history of the Sand crab Ocypoda cursor (Decapoda, Brachyura, Ocypodidae).] Hora’at HaTeva BeBatey HaSefer (Nature Education at Schools), 7-8: 44-48.

--Danin, Z. & Lewinsohn, Ch., 1959. [The beginning of practical work in the biological laboratory.] Hora’at HaTeva BeBatey HaSefer (Nature Education at Schools), 7-8: 55-56.


[...........] = articles published in Hebrew.

Additional eponym i.e. scientific name dedicated to Chanan Lewinsohn

Acknowledgments

We are indebted to many friends, colleagues, and staunch supporters who are always there for us. We are particularly grateful to the Chair of the Board of Governors of Tel Aviv University, Michael Steinhardt and to Judy Steinhardt, for their unswerving support and friendship. Their kindness and support are key to our success and we are deeply indebted to them.

The museum faculty and staff are part of a large and active research university that has always been home to us. We thank Shimshon Shoshani of the Board of Directors of Tel Aviv University for the benefit of his wisdom, experience, and advice, and for his willingness to help us bring this project to fruition.

We are deeply indebted to the President of Tel Aviv University, Itamar Rabinovich, for helping us secure yet another significant donation for the new building, promoting the future of the National Collections of Natural History at Tel Aviv University.

A proper building is one of our major priorities; we thank the Chair of the Program Committee for enjoining our building with that of the Porter School for Environmental Studies, Prof. Hagit Messer-Yaron, Vice President for Research & Development and Head of the Porter School of Environmental Studies, as well as all committee members – Arnon Mani, Head of Planning Methods and Control Unit, Ofer Lugasi, Deputy Director of Engineering and Maintenance, David Haiblum, Deputy Director of Finance Division, Nurith Goldstein, Deputy Director of Office of the General Administration, Nissan Yaacoby, Director of Engineering and Maintenance, Yoram Eldan, Campus Architect, Arie Nesher, Professional Director of The Porter School of Environmental Studies, and Yehuda Benayahu, former Head of the Department of Zoology - for their hard and constructive work.
We are part of a robust academic community that cares for 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. The Department of Zoology, of which many of us are members, provides us, as always, with most of our technical staff and with remarkable support and collegiality. We are grateful to Yoel Kloog, Dean of the Faculty of Life Sciences, who is constructively involved in our activities.

In the past year we have received financial support as well as curatorial positions from Vatat, the Planning and Grants Committee of the Council of Higher Education of Israel. Moreover, the Head of Vatat, Shlomo Grossman, has been active in helping us raise funds for a proper collections facility. We are very grateful to him, as well as to Vatat.

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. Menahem Yaari, President of the Israel Academy of Sciences and Humanities, and Ruth Arnon, the Vice President, are both involved and supportive of our project. We are also grateful to Alex Levitzki, Head of the Science Division of the Israel Academy of Sciences and Humanities for his commitment to promoting biodiversity research and conservation. Yehudith Birk, Chair of the Academy's Steering Committee for the National Collections of Natural History, Rafael Meschoulam, and Yossi Segal continued their constructive activity towards promoting the collections and we are as ever very grateful to them, as well as to the other committee members and observers – Reuven Merhav, Aharon Kaplan, Yael Lubin, Ehud Spanier, and Yossi Loya – for their time, support, and initiative.

Our collections enjoy the support of many friends outside Tel Aviv University. We thank Miriam Haran, Director-General of the Ministry of the Environment for her continued support. 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, as well as to our colleagues and friends in other Israeli universities and research institutes.

Nature Campus is a joint 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, Arnon Lotem and Jacob Gary.

We acknowledge the support of the Steering Committee of Nature Campus, Chaired by the Dean of Life Sciences, Yoel Kloog, coordinated by Iris London-Zolty, and whose members are Lea Pais, Director of the Research Authority, Amit Striet, Director of the Finance Department, and Sigal Adar, Director of Friends of TAU, Abraham Hefetz, Head of the Department of Zoology, Daniel Chamovitz, Head of the Department of Plant Sciences, Yoel Rak, Head of the Department of Anatomy and Anthropology, Tamar Dayan, Director of the Natural History Collections, Arnon Lotem, Director of the I. Meier Segals Garden for Zoological Research, Jacob Garti, Director of the Botanic Gardens. We are also grateful for the enthusiasm and constructive attitude of the members of our newly founded Nature Campus Scientific Committee: Daniel Chamovitz, Head of the Department of Plant Sciences, Israel Finkelstein from the Jacob M. Alkow Department of Archaeology and Ancient Near Eastern Cultures, Jonathan M. Gershoni, Head of the Department of Cell Research and Immunology, Yoav Gothilf from the Department of Neurobiochemistry, Abraham Hefetz, Head of the Department of Zoology, Ayala Hochman from the Department of Biochemistry, Arnon Lotem from the Department of Zoology and Director of the I. Meier Segals Garden for Zoological Research, Rafi Nachmias from the Constantiner School of Education, Yoel Rak, Head of the Department of Anatomy and Anthropology, Eliora Ron from Department of Molecular Microbiology and Biotechnology, Marcelo Sternberg from the Department of Plant Sciences, and Tamar Dayan
from the Department of Zoology and Director of the Natural History Collections.

Yehudit Shvili of the Price-Brodie 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 the education teams of the Society for the Protection of Nature in Israel for and Israel Nature and Parks Authority for their support, their friendship, and their constructive engagement in many of our projects.

During 2004/2005 Nature Campus activities enjoyed the invaluable financial support of the Ministry of Education and Yad Hanadiv Foundation.

Finally, it is our pleasure to thank a longstanding and very special friend of the collections who have been there for us for some years now. We thank Martin Weyl, who has kindly shared his astonishing expertise in museology, and whose support and advice have been invaluable.
Publications

The national collections of natural history are an important research infrastructure, used by scientists within and without the university. Approximately a decade ago we compiled the list of publications based on our natural history collections, and arrived at over 1200 publication produced by over 550 scientists. This list was incomplete, for technical reasons related to reconstructing this record, and since it did not include the sizable list of publications based upon the anthropological collections. Our current list of the 2004/2005 publications, alas, is also incomplete; it includes all publications of TAU members affiliated with the collections (whether they are directly collections-based on not), and under-represents publications of individuals from other institutions, since our follow up is far from complete.

Refereed articles


**Accepted for publication**


9. Galil, B.S. and Titellius, M. Contributions to the knowledge of the Leucosiidae (Crustacea: Brachyura) of Dampier Archipelago, Western Australia. *Rec. Western Australia Museum*


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31. Rak, Y, What else is the tall mandibular ramus of the robust australopithecines good for? Hylander Volume Contribution.


36. Yokes, B. and Galil, B.S. New records of alien decapods (Crustacea) from the Mediterranean coast of Turkey, with a description of a new palaemonid species. *Zoosystema*.

37. Yom Tov, Y. and Geffen, E. Are latitudinal clines in mammalian body size related to ambient temperature or precipitation? *Oecologia*.


**Chapters in books**


Accepted for publication


**Professional Reports**

Papers presented in scientific meetings

2004  Training and joint flexibility in dancers. Fifth research fair of the Sackler Faculty of Medicine, Tel-Aviv University, Book of Abstracts, p.5 (Steinberg, N., Siev-Ner, I., Peleg, S., Dar, G., Been, E., Ezra, D., Masharawi, Y. and Hershkovitz, I.).


2004  Aging of the cervical spine. Fifth research fair of the Sackler Faculty of Medicine, Tel-Aviv University, Book of Abstracts, p.8 (Ezra, D., Salame, K., Peleg, S., Masharawi, Y., Dar, G., Been, E., Steinberg, N. and Hershkovitz, I.).


2004  European Light Microscopy Initiative Conference (Gothenburg, Sweden) (M. Ilan).


2004 On community ecology, ecological communities, and rocky desert rodents (invited paper). Israel Society of Microbiology, Microbial Ecology Fall Workshop, the Dead Sea, Israel (T. Dayan).


2004 Rapid biodiversity assessment in Mediterranean ecosystems: Is the higher-taxon approach a reliable shortcut? The 41st Conference of the Zoological Society of Israel, 12 December, Haifa. (Y. Mandelik, E. Feitelson, V. Chikatunov, V. Kravchenko and T. Dayan).

2004 Species diversity of spiders and beetles in pine plantations vs. natural landscapes in the Judean foothills. The 41st Conference of the Zoological Society of Israel, 12 December, Haifa. (T. Levanony, E. Columbus, Y. Mandelik, V. Chikatunov, S. Zonstein and T. Dayan).

2004 The 2nd H. Lowenstam Biomineralization international workshop (Elat, Israel) (M. Ilan).


2004 The thoraco-lumbar vertebral body: shape variation and its association with gender, age and ethnic origin. Fifth research fair of the Sackler Faculty of Medicine, Tel-Aviv University, Book of Abstracts, p.6 (Masharawi, Y., Rothschild, B., Dar, G., Peleg, S., Alperovitch-Nejenson, D. and Hershkovitz I.).


2005  Fixed and Floating Artificial Reefs for Rehabilitation of Coral Reef Fish Communities. 8th International Conference on Artificial Reefs and Artificial Habitats (CARAH), Biloxi, MS, USA (M. Halperin and Y. Benayahu)


2005  Which is stronger - age or structure? A comparison of benthic communities on a shipwreck to the adjacent natural reef. 8th International Conference on Artificial Reefs and Artificial Habitats (CARAH), Biloxi, USA (S. Perkol-Finkel, N. Shashar and Y. Benayahu).

2005  Landscape modulators as determinants of arthropod diversity. Active Management of Mediterranean Ecosystems: Up-Scaling the Lesson from Ramat Hanadiv, Zichron Ya'akov (Y. Lubin & E. Groner).


2005  Anthropogenic changes in Mediterranean habitats in Israel - the mountain gazelle (Gazella gazella) as an indicator. Conservation and management of the Mediterranean region, Zichron Yaakov (Y. Yom-Tov).


2005  Federation of the Israeli Societies of Experimental Biology (Elat, Israel) (M. Ilan).
2005  Fish Biodiversity of Eritrea (Red Sea). 7th Indo-Pacific Fish Conference. 16-21 May. Taipei, Taiwan (M. Goren, A. Baranes and D. Golani).


2005  International Marine Biotechnology Conference (St. John’s, Canada) (M. Ilan).

2005  Israel Society of Microbiology (Tel Aviv, Israel) (M. Ilan).

2005  Mosquito bite frequency near a large mosquito trap and a repellent - trap system. AMCA Congress, Vancouver, Canada (G.C. Muller, C. Li, V.D. Kravchenko and Y. Schlein).


2005  Peer Review of the Department of Ecology and Evolutionary Biology, 13-16 April, Ravenna, Italy (Y. Loya).


2005  Society of Israeli Aquaculture and Marine Biotechnology (Elat, Israel) (M. Ilan).


2005  The principle and performance of a multi species ovi-trap that inhibits the escape of developing adults. AMCA Congress, Vancouver, Canada (G.C. Muller, C. Li, V.D. Kravchenko and Y. Schlein).


Graduate students

Much active scientific research is carried out by graduate students. Here we list the graduate students of faculty members affiliated with the National Collections of Natural History at Tel Aviv University. We list also a few graduate students from other institutions of higher education, but names and affiliations of many others from Israel and abroad are unknown to us.

PhD students

1999-2005  Orit Barneah (Y. Benayahu)
Micoscale events during the onset of coral-algal symbiosis.

1999-2005  Yael Mandelik (T. Dayan and E. Feitelson)
Assessing the ecological aspects of environmental assessment in Israel.

1999-  Liora Glass (E. Geffen and T. Dayan)
The ecology of jungle cats in natural and anthropogenic habitats in Israel.

1999-  Vered Shimony (O. Mokady)
Establishment and maintenance of the head region in colonial hydroids.

2000-2005  D. Alterovitz (I. Hershkovitz)
Association between lower back pain and lumbar region architecture.

2000-2005  S. Peleg (I. Hershkovitz)
Skeletal manifestation in kyphosis and scoliosis.

2000-  Sharon Gild (O. Mokady)
Invertebrate allorecognition.

2000-  Reuvat Nitzan (T. Dayan and A. Ar)
Population dynamics of the chukar partridge in Israel.

2001-2005  Eran Hadas (M. Ilan)
Sponge aquaculture.
<table>
<thead>
<tr>
<th>Year</th>
<th>Author(s)</th>
<th>Project Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>Tamar Feldstein (O. Mokady)</td>
<td>Molecular level markers for biomonitoring the coastal environment.</td>
</tr>
<tr>
<td>2001</td>
<td>Lee Koren (E. Geffen and O. Mokady)</td>
<td>Vocalization as an indicator of individual quality in rock hyrax.</td>
</tr>
<tr>
<td>2001</td>
<td>Shimrit Perkol (Y. Benayahu)</td>
<td>Spatial and temporal interactions between artificial and natural reefs.</td>
</tr>
<tr>
<td>2002</td>
<td>Hadass Schteinitz (Y. Yom-Tov and T. Dayan)</td>
<td>Species and community level investigation of the environmental factors which affect mammal distributions in Israel.</td>
</tr>
<tr>
<td>2003</td>
<td>B. Bahaa (I. Hershkovitz)</td>
<td>Macro and microstructure of the annulus fibrosus.</td>
</tr>
<tr>
<td>2003</td>
<td>Leon Novak (M. Ilan)</td>
<td>Engineering a bacterial expression system to produce large amounts of known and of modified naturally occurring bioactive compounds of pharmacological interest.</td>
</tr>
<tr>
<td>2003</td>
<td>Merav Weinstein (T. Dayan and A. Hefetz)</td>
<td>Invasive ants of Israel.</td>
</tr>
</tbody>
</table>
2003- Gidon Winters (Y. Loya)
Photoinhibition in corals – effects of UV, PAR and temperature.

2004- S. Barkan (Y. Yom-Tov and A. Barnea).

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

2004- Liat Gahanama (A. Freidberg)
A revision of the Schistopterum clade of Schistopterini.

2004- Efrat Gavish (Y. Lubin, Ben Gurion University)
Description of new spiders species from the family Linyphiidae.

2004- Constantin Grach (A. Freidberg)
Ecology and biology of costal dune insects.

2004- Mati Halperin (Y. Benayahu)

2004 - Boaz Mayzel (M. Ilan)
Magnetoreception in sponges.

2004- Irina Zonstein (A. Freidberg)
A revision of the Rhabdochaeta clade of Schistopterini.

2005- Rachel Armoza (Y. Loya)
Ecological and physiological aspects of sex hormones in corals.

2005- Motti Charter (Y. Leshem)

2005- Yaron Krotman (M. Goren)
Fish biodiversity and ecology in oasis habitats in the Dead Sea Valley.

2005- Orit Skutelsky (T. Dayan and E. Feitelson)
Biodiversity conservation in biosphere reserves of Israel: the switch from a market led to conservation oriented agriculture.

2005- Tal Levanony (T. Dayan)
Patterns of biodiversity in natural and cultural landscapes: a model Mediterranean forest ecosystem.

2005- Ofir Levy (T. Dayan and N. Kronfeld-Schor)
Modeling climate effects on temporally-partitioned rocky desert rodents: from basic principles to community structure.
<table>
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<tr>
<th>Year</th>
<th>Student</th>
<th>Project Description</th>
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### MSc students

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<thead>
<tr>
<th>Year</th>
<th>Student</th>
<th>Project Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001-2005</td>
<td>Edit Adler (Y. Benayahu)</td>
<td>Cross infection of juvenile corals by zooxanthellae clade C.</td>
</tr>
<tr>
<td>2001-2005</td>
<td>Moti Ofir (A. Gasith)</td>
<td>The ecological impact of petroleum distillate derivatives (MLO) used for controlling mosquito infestations in streams.</td>
</tr>
<tr>
<td>2001</td>
<td>G. Samora (I. Hershkovitz)</td>
<td>Cribra orbitalia in historic populations.</td>
</tr>
<tr>
<td>2002-2004</td>
<td>Gillie Pragai (Y. Ziv, Ben-Gurion University)</td>
<td>Is there scale dependence in the beetle-species diversity – productivity relationship, in the sandy habitat of Israel?</td>
</tr>
<tr>
<td>2002-2004</td>
<td>Udi Sogavker (Y. Ziv, Ben-Gurion University)</td>
<td>The relationship between productivity and ant-species richness at regional and local scales.</td>
</tr>
</tbody>
</table>
2002-2004 Gal Yaacobi (Y. Ziv, Ben-Gurion University)
The effect of landscape patchiness and heterogeneity on beetle species diversity in the Southern Judea Lowland.

2002-2005 Elad Ben-David (A. Gasith)
Stream rehabilitation: sensitivity of macroinvertebrates to brackish water.

2002-2005 Ehud Columbus (T. Dayan)
Biodiversity in agricultural landscapes.

2002-2005 Ornit Hall (T. Dayan and D. Wool)
Parataxonomy as a research and conservation tool in Israel.

2002-2005 Tal Levanoni (T. Dayan)
Biodiversity and sylviculture in KKL forests of Israel.

2002-2005 N. Raban-Gerstel (G. Bar-Oz, University of Haifa)
The Faunal Remains from Tel-Dor: Harbor City in the Early Iron Age.

2002-2005 Neta Dasa (M. Goren)
Reproductive aspect in riverine fish.

2002-2005 Arian Wallach (M. Inbar and U. Shanas, Oranim Academic College)
Re-introduction of Roe Deer.

2003-2005 Rachel Armoza (Y. Loya)
Stress bio-indicators in scleractinian corals.

2003-2005 Ilil Atad (O. Mokadi)
The establishment of the Lessepsian migrant Cellana rota (Gastropoda) in the Mediterranean Sea.

2003-2005 Yuval Berger (E. Groner and M. Shachak, Ben Gurion University)

2003-2005 Inbal Brickner (Y. Yom-Tov and E. Gefen)
The impact of feral cats on Israeli wildlife.

2003-2005 Eran Levin, (Y. Yom-Tov and A. Barnea)
The diet of some insectivorous bats in northern Israel.
<table>
<thead>
<tr>
<th>Year</th>
<th>Name</th>
<th>Title</th>
</tr>
</thead>
</table>
2004- Yotam Bar (M. Goren)
Stability of fish community in Shiqmona.

2004- Haim Biala (V. Soroker, The Agricultural Research Organization of Israel)
Ants associated with banana aphids.

2004- Noam Cohen (M. Inbar and I. Izhaki, Oranim Academic College)
The effects of secondary metabolites in nectar on ants.

2004- Sara Cohen (M. Goren)
Diversity and dynamic of fish catch by trawlers off the Mediterranean Israeli coast.

2004- Allen Daniel (Y. Loya)
Community structure of deep (50 m) scleractinian corals in Elat, Red Sea.

2004- Shani Inbar (D. Huchon)
Identification of new nuclear markers to solve sponge phylogeny.

2004- Inbal Ginsburg (Y. Benayahu)
Farming of soft coral for reef rehabilitation purposes.

2004- Ariella Gotlieb (T. Dayan)
Ecological restoration of the Ze'elim wadi bed, near the Dead Sea.

2004- Ronit Justo-Hanani (T. Dayan and A. Tal)
Comparative legislation of invasive species.

2004- Michal Meir (A. Freidberg and M. Sternberg)
Flower color variation in the thistle, Syllibum marianum.

2004- Adi Ramot (E. Groner and P. Bar, Ben Gurion University)

2004- Shachar Samra (A. Freidberg and D. Gerling)
Biology and taxonomy of selected Parasitica (Hymenoptera).

2004- Roe Segal (Y. Loya)
Molecular characteristics of the bleaching phenomenon of the Mediterranean stony coral Oculina patagonica.
<table>
<thead>
<tr>
<th>Year</th>
<th>Name</th>
<th>Institute</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>Ido Sella</td>
<td>Y. Benayahu</td>
<td>Cultivation of the soft coral <em>Sarcophyton glaucum</em>.</td>
</tr>
<tr>
<td>2004</td>
<td>Amir Shitenberg</td>
<td>M. Goren</td>
<td>Geographical variation in selected cichlid fish.</td>
</tr>
<tr>
<td>2004</td>
<td>Daniel Yashunski</td>
<td>M. Goren</td>
<td>Recruitment of fish in artificial coral reefs.</td>
</tr>
<tr>
<td>2004</td>
<td>Yael Zaldam</td>
<td>Y. Benayahu</td>
<td>Colonization of fixed and floating artificial marine structures at Elat (Red Sea).</td>
</tr>
<tr>
<td>2004</td>
<td>Dror Zurel</td>
<td>Y. Benayahu</td>
<td>Specificity of algal symbionts in horizontally acquired system.</td>
</tr>
<tr>
<td>2005</td>
<td>Ada Alamaro</td>
<td>Y. Loya</td>
<td>Ecological and cellular aspects of color morphs in the coral <em>Stylophora pistillata</em>.</td>
</tr>
<tr>
<td>2005</td>
<td>Kfir Gaier</td>
<td>M. Goren</td>
<td>The impact of grazing fish on invertebrate communities in eastern Mediterranean.</td>
</tr>
<tr>
<td>2005</td>
<td>Michal Grosovich</td>
<td>Y. Benayahu</td>
<td>Habitat partitioning of three azooxanthellate soft corals in Elat (northern Red Sea).</td>
</tr>
</tbody>
</table>
2005- I. Khalfin (M. Ilan)
Function of natural products from sponge associated fungi.

2005- Oded Keynan (T. Dayan)
Bird distribution along gradients in the Arava Rift Valley.

2005- Nimrod Lazarus (Y. Loya)
Induction of metamorphosis in nudibranch larvae.

2005- Mustaga Mahagna (D. Gerling)
Whiteflies growing on trees.

2005- Osnat Maor (M. Goren)
Diversity and dynamic of invertebrates catch by trawlers off the Mediterranean Israeli coast.

2005- Erez Maza (T. Dayan)
Climate and land-use patterns in biodiversity.

2005- Ido Mizrachi (Y. Loya)
Sclerochronology of bleached and non-bleached corals.

2005- Keren Shachar (Y. Benayahu)
Initial colonization phases of fixed and floating artificial marine structures at the Israeli Mediterranean coast.

2005- Oren Shelef (E. Groner and M. Shachak, Ben Gurion University)

2005- Tamir Shelhav (E. Groner and M. Shachak, Ben Gurion University)

2005- Rosin Shemesh (Y. Loya and E. Rosenfeld)
Possible causes of white band disease in Faviid corals at Elat.

The origin and timing of some migratory birds passing through Israel.

2005- Ina Stierberg (T. Dayan)
Climatic radients in biodiversity.

2005- K. Toktan (Y. Yom-Tov)
Phylogeography of the orange-tufted Sunbird Nectarinia osea.
2005- Maya Weizel (Y. Loya)
Bleaching patterns in a Red Sea scleractinian coral population.

2005- Rafi Yaabetz (Y. Loya)
Reproductive cycle of a nudibranch.

Post-docs

2004-2005 Shai Meiri (T. Dayan)
2004- Noam Leader (Y. Yom-Tov)
Fellowships and grants

Support for collections-based research is provided by fellowships and grants. Here we list the fellowships and grants of faculty members of Tel Aviv University who are affiliated with the collections. Needless to say, the many colleagues from other research institutions in Israel and abroad also receive fellowships and grants that hinge, at least in part, on work in the natural history collections. These data, however, are not available to us.

While these fellowships and grants and others cannot support collections maintenance, they are very important for collection development since they provide the funds for active collecting, which are otherwise unavailable in the State of Israel. We do our best to help scientists use the collections and to promote collections-based biodiversity research.


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; $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 socio-
economic aspects (five year grant; $45,000 per annum) (T. Dayan, M. Goren, and A. Freidberg).

**2002-**
On-going grant from the Nature and Parks Authority to "rescue" insects on the Golan and Hermon (V. Chikatunov and A. Freidberg).

**2002-2005**
International Arid Lands Consortium (IALC) ($100,000) (E. Geffen, M. Kam and G. Roemer).

**2002-2005**
International Arid Lands Consortium (IALC) ($100,000) (E. Geffen, M. Kam and G. Roemer).

**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. 152,000 USD (J. Garty, A. Hochman and B. Bradley).

**2002-2006**

**2003-2005**

**2003-2005**
Research grant from the Jewish National Fund: The influence of different forestry regimes on biodiversity (Three year grant at 40,000 NIS (ca. $8,500) per annum) (T. Dayan and Y. Mandelik).

**2003-2007**
Israel Science Foundation (ISF)-"An integrative approach of studying bacterial coral bleaching in the coral reefs of Elat". (Y. Loya and E. Rosenberg).

**2003-2010**
The World Bank/UNESCO/IOC International Targeted Group of Experts on "indicators of coral bleaching". A 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
Investigation of fish remains from Gesher Benot Ya'aqov (GBY): A glimpse into the site paleoecology and taphonomy. CARE, I. Levi Sala Archaeological Foundation. (I. Zohar)

Tel Aviv University Basic Research Grant ($8,000) (E. Geffen).


Grant from Yad Hanadiv Foundation. Planning a natural history museum at Tel Aviv University ($50,000) (T. Dayan).


Ministry of Justice: Department of the Public Trustee and the Official Receiver (P.I.). For science for all publications on the internet. (80,000 NIS ca. $18,000) (Y. Gavrieli).

Yad Ben-Zvi (P.I.). For organizing an international seminar on the environmental history of Israel. ($10,000 ca. 45,000 NIS) (Y. Gavrieli).

Marie Curie European Reintegration Grant (Brussels, Belgium) (M. Ilan).

Grant from the USDA (and other donators) to develop the Parasitica collection (D. Gerling).

Grant from the Israel Scientific Foundation. Exploitation and hunting patterns of Mountain Gazelle (Gazella gazelle) and Persian Fallow Deer (Dama mesopotamica) during the Late Pleistocene - Early Holocene of the Southern Levant: Testing the hypothesis of cultural control (3 year grant; ca. $30,000 per annum (G. Bar-Oz and T. Dayan [C.I.]).

US (MD) - Israel BARD - Binational Agricultural Research and Development Fund (Jerusalem, Israel) (M. Ilan).


2004-2008 Israel Science Foundation (ISF) - (Co Y. Loya and A. Shemesh).

2005 The Maurice Hatter Fellowship for Maritime Studies, University of Haifa: Fishing activity and fish trade by the "Sea People": A case study from Tel-Dor, Israel. (I. Zohar).

2005 The Antiquities Authority research grant: Ongoing analysis of the faunal remains from the Neolithic of Motza (22,000 NIS [ca. $5000]) (T. Dayan).


2005-2007 Resolving the higher-level phylogeny of rodents using nuclear genes and SINEs retrotransposons. The United States-Israel Binational Science Foundation (start-up grant program) ($30,000 per year) (D. Huchon and R.W. DeBry).

2005-2008 GLOWA Jordan River research grant: Modeling the impact of global climate change on terrestrial biodiversity in the Jordan River Basin: Testing planning scenarios and climate change scenarios (3 year grant; ca. EURO 35,000 per annum) (T. Dayan, P.I. of subproject).

2005-2009 The Israel Science Foundation (488/05); 4 years. Vocalization as an indicator of individual quality in the rock hyrax ($180,000) (O. Mokady, E. Gefen and M. Kam).

2006-2008 German-Israeli Foundation for Scientific Research and Development grant: Patterns of biodiversity in natural and cultural landscapes: a model Mediterranean forest ecosystem (3 year grant; total sum EURO 158,000) (T. Dayan and T. Assmann).
Awards

1996- The Dr. Israel Cohen Chair in Environmental Zoology (Y. Yom-Tov).

1997- The Raynor Chair in Environmental Conservation Research at Tel Aviv University (Y. Loya).

1999- The Igor Orenstein Chair for Gerontological Research at Tel Aviv University (Y. Rak)

2000 The Darwin Medal (awarded every 4 years), for life contribution to coral reef research; awarded during the 9th International coral Reef Symposium Bali, Indonesia by the International Society for Reef Studies (ISRS) (Y. Loya).

2003 The Landau Prize (together with Prof. Eugene. Rosenberg, TAU) awarded by Mifaal Hapais in the category of Life Sciences for original outstanding research contribution to the field of Ecology and Environmental Quality (Y. Loya)
Public service

1953- Member of the Zoological Society of Israel (L. Fishelson).
1965- Member of the Zoological Society of Israel (Y. Yom-Tov).
1970- Member of the American Society of Ichthyologists and Herpetologists (L. Fishelson).
1970- Member of the Israel Ecological Society (M. Goren).
1970- Member of the Zoological Society of Israel (M. Goren).
1971- Honorary Associate, Dept. of Malacology, Zoological Museum Amsterdam, Amsterdam, the Netherlands (H.K. Mienis)
1972- Member of the Entomological Society of Southern Africa (A. Freidberg).
1973- Member of the IAL (International Association for Lichenology) (J. Garty).
1973- Member of the Israel Zoological Society (Y. Benayahu).
1973- Member of the The Israel Ecological Society (J. Garty).
1975- Member of the Israel Ecological Society (L. Fishelson).
1976- Curator of the Fish collection, Zoological Museum, Tel Aviv University (M. Goren).
1976- Member of the Entomological Society of Israel (A. Freidberg).
1977- Member of the Intecol - International Ecological Society (L. Fishelson).
1978- Member of the La Societe Francais d'Ichthyologie (M. Goren).
1979- Member of the editorial board of Marine Ecology Progress Series (Y. Loya).
1979- Member of the Entomological Society of Washington (A. Freidberg).
1981- Israel Anthropological Society (Hershkovitz I.).
1981- Israel Society for Anatomical Sciences (Hershkovitz I.).
1981- Member of the Israel Society for Electron Microscopy (J. Garty).
1982- Member of the Advisory Board of the Israel Journal of Zoology (Y. Yom-Tov).
1982- Member of the European Ichthyological Union (M. Goren).
1982- Member of the European Union of Ichthyologists (L. Fishelson).
1983- Curator of the Invertebrate collections, Zoological Museum, Tel Aviv University (Y. Benayahu).
1984- Member of the Israel Zoological Society (M. Ilan).
1984- European Anthropological Association (Hershkovitz I.).
1984- Israel Prehistoric Society (Hershkovitz I.).
1985- Curator of the Entomological collections, Zoological Museum, Tel Aviv University (A. Freidberg).
1985- Member of the Committee for Fauna and Flora of Israel - The Israel Academy of Sciences and Humanities (M. Goren).
1985- Member of the Israel Society for Aquaculture (M. Goren).
1986- Member of the Board of the Regional Central Asia Committee of Stratigraphy (O. Orlov-Labkovsky).
1986- Member of the editorial board of Marine Biology (Y. Loya).
1986- Member of the International Society for Reef Studies (Y. Benayahu).
1986- Member of the the Botanical Society of Israel (J. Garty).
1986- Member of the Zoological Society of Israel (T. Dayan).
1987- Curator of Birds & Mammals, Zoological Museum, Tel Aviv University (Y. Yom-Tov).
1987- Member of the Israel Society of Prehistory (T. Dayan).
1988- Member of the International Society for Reef Studies (USA) (M. Ilan).
1988- Member of the Ecological Society of America (T. Dayan).
1988- Member of the Fauna & Flora Committee, Israel Academy of Sciences and Humanities Curator of Birds & Mammals (Y. Yom-Tov).
1988- Member of the Israel Society for Ecology and Environmental Quality (Y. Benayahu).
1988- Member of the Society of Invertebrate Reproduction (Y. Benayahu).
1989- Member of the Zoological Society of Israel (O. Mokady).
1989- Paleoanthropology Society (Hershkovitz I.).
1989- Pre-clinical Advisor for New York Program medical students (Y. Rak)
1990- Deutsche Gesellschaft für Tropenoekologie (A. Freidberg).
1990- Member of the American Society of Mammalogists (T. Dayan).
1990- Member of the International Council of Archaeozoology (T. Dayan).
1990- Member of the International Ornithological Committee (Y. Yom-Tov).
1990- Member of the Pacific Science Association (Y. Benayahu).
1990- Member of the Society of Vertebrate Paleontology (T. Dayan).
1991- Smithsonian Institution Entomology, Research Associate (A. Freidberg).
1991- Member of the Ichthyological Society of Japan (M. Goren).
1992- Member of the Society for Research on Coelenterates (USA) (M. Ilan).
1992- Member of the Board of Publications, Senckenberg Institute, Germany (L. Fishelson).
1993- Member of the Ecology Graduate Program Committee, Faculty of Life Sciences, Tel Aviv Univ (T. Dayan).
1993- Member of the Israel Society for the Study of the Origin of Life (IL-SOL) (J. Garty).
1993- Member of the IUCN Canid Specialist Group (E. Geffen).
1993- Paleopathology Association (Hershkovitz I.).
1993- Scientific Advisor to the Yarqon River Authority (M. Goren).
1994- Dental Anthropology Association (Hershkovitz I.).
1994- Member of the American Association of Anatomists (L. Fishelson).
1994- Member of the Curriculum Committe (Y. Rak)
1994- Research Associate of the Oceanographic Research Institute, Durban, South Africa (Y. Benayahu).
1995- American Associations of Physical Anthropology (Hershkovitz I.).
1995- Human Biology Association (Hershkovitz I.).
1995- Member of the American Society for Integrative and Comparative Biology (Y. Benayahu).
1995- Member of the Director of the National Collections of Natural History at Tel Aviv University (T. Dayan).
1995- Member of the Fisheries Society of Africa (M. Goren).
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).
1996- Member of the American Microscopical Society (Y. Benayahu).
1997- Member of the International Society for Research on Symbiosis (USA) (M. Ilan).
1997- Member of the scientific steering committee of the Institute for Nature Conservation Research (M. Ilan).
1997- Adopting a scientist for a Shapiro Stipend, Prof. A. Lehrer (A. Freidberg).
1997- Chair of the Raynor Chair for Environmental Conservation Research, Tel Aviv University (Y. Loya).
1997- Member of the British Ornithologists' Union (Y. Yom-Tov).
1998- Scientific co-convenor of DIVERSITAS (An international programme of Biodiversity Science) STAR element 9 on “Inventory and Monitoring of Inland Water Biodiversity” (M. Goren).
1998- Member of the American Fisheries Society (M. Goren).
1998- Member of the Departmental Committee, Department of Zoology, Tel Aviv University (T. Dayan).
1998- Member of the Societas Internationalis Limnologiae (SIL) (M. Goren).
1999- Co-Chair of the committee for Fauna and Flora of Israel - The Israel Academy of Sciences and Humanities (M. Goren).
1999- Member of the Board of Directors of the Inter-university Institute (IUI), Elat (Y. Benayahu).
1999- Member of the Committee for terms in ecology and environmental quality, The Academy for Hebrew Language (Y. Benayahu).
1999- Member of the International Society for the Study of the Origin of Life (ISSOL) (J. Garty).
1999- Member, National Committee for the environmental curriculum in high schools (L. Fishelson).
2000 - Member of the steering committee of the Department of Biology, Israel Oceanographic and Limnological Research, Haifa (M. Ilan).
2000 - Head of the Faculty Teaching committee (M. Ilan).
2000 - Member of the steering committee of the Department of Biology, Israel Oceanographic and Limnological Research, Haifa (M. Ilan).
2000- Member of the Japanese Coral Reef Society (Y. Benayahu).
2000- Adopting a scientist for a Gil’adi program (A. Freidberg).
2000- Director of Nature Campus, Tel Aviv University, Tel Aviv (Y.Gavrieli).
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), Elat (Y. Loya).
2000- Member of the Israel Society for Oxygen and Free Radical Research (J. Garty).
2000- Member of the Scientific Advisory Board of the International Institute (Peoples) (T. Dayan).
2000- Member of the Scientific Review Board - Coral bleaching Project, Research Institute for the Subtropics (RSI), Okinawa, Japan (Y. Loya).
2000- Member of the Zoological Society of Israel (R. Ben-David-Zaslow).
2000-2005 Head of the Faculty of Life Sciences Teaching Committee (M. Ilan).
2001- Member of Man & Biosphere Committee, UNESCO (Y.Gavrieli).

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<table>
<thead>
<tr>
<th>Year</th>
<th>Position and Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001-</td>
<td>Member of Man &amp; Biosphere Committee, UNESCO (Y. Gavrieli).</td>
</tr>
<tr>
<td>2001-</td>
<td>Member of the executive committee of the Zoological Society of Israel (M. Goren).</td>
</tr>
<tr>
<td>2001-</td>
<td>Chair of the Israel MAB (Man and Biosphere) UNESCO Committee (T. Dayan).</td>
</tr>
<tr>
<td>2001-</td>
<td>Co Chairman - International Targeted working group on coral bleaching under the auspices of the World Bank, in collaboration with IOC/UNESCO (Y. Loya).</td>
</tr>
<tr>
<td>2001-</td>
<td>Head of the National Center for High Throughput Screening of Novel Bioactive Compounds (M. Ilan).</td>
</tr>
<tr>
<td>2001-</td>
<td>Member of the Advisory committee for the Minister of the Environment’s award for volunteers (T. Dayan).</td>
</tr>
<tr>
<td>2001-</td>
<td>Member of the Board of Directors, Society for the Protection of Nature in Israel (Y. Yom-Tov).</td>
</tr>
<tr>
<td>2001-</td>
<td>Member of the Israel IGBP (International Geosphere Biosphere Program) Committee (T. Dayan).</td>
</tr>
<tr>
<td>2001-</td>
<td>Member of the Museum Committee (Chair), Department of Zoology, Tel Aviv University (T. Dayan).</td>
</tr>
<tr>
<td>2001-</td>
<td>Member of the Steering Committee for Nature Campus, Public Programs, Exhibitions &amp; Education at the National Collections of Natural History, the I. Meier Segals Garden for Zoological Research and the Botanic Gardens (T. Dayan).</td>
</tr>
<tr>
<td>2001-</td>
<td>Member of the UNESCO World Heritage Committee, Israel (T. Dayan).</td>
</tr>
<tr>
<td>2001-</td>
<td>Member of the International Council of Museums (Y. Gavrieli).</td>
</tr>
<tr>
<td>2001-2005</td>
<td>Member of the Library Committee, Tel Aviv University (Y. Benayahu).</td>
</tr>
<tr>
<td>2002-</td>
<td>Member of the Société Lichenologica Italiana (Honorary member) (J. Garty).</td>
</tr>
</tbody>
</table>

2002- Member of the Department Committee in the Department of Zoology (Y. Benayahu).

2002- Member of the editorial board of Marine Pollution Bulletin (Y. Loya).

2002- Member of the Society for Conservation Biology (T. Dayan).


2002-2005 Member of the interdepartmental equipment committee, Faculty of Life Sciences, Tel Aviv University (ZABAM) (Y. Benayahu).

2003- Member of the Israeli Society for aquatic research (M. Goren).


2003- Head of "Research and Monitoring" team towards developing a national biodiversity action plan for the State of Israel (T. Dayan with R. Kadmon).

2003- Head of the Department of Zoology (Y. Benayahu).

2003- Member of the Board of Directors of the Nature and National Parks Protection Authority of Israel (INPA), and Chair of the Science Committee of the Board (T. Dayan).

2003- Member of the Great Rift Valley task force of the UNESCO World Heritage Committee (T. Dayan).

2003- Member of the Professional committee for biology teaching in the Ministry of Education, Israel (T. Dayan).

2003- Member of the Steering committee for "The environmental voice at the Judean Foothills", environmental community action in an area planned as a biosphere reserve (T. Dayan).

2003 Search committee for a Chief Scientist for the Israel Nature and Parks Authority (T. Dayan).

2004- Member of the Society for Conservation Biology (Y. Gavrieli).

2004 - Chair of the Strategic Planning Committee for the Open Lands Institute on behalf of Yad Hanadiv Foundation (T. Dayan).

2004 - Editor in Chief of Electronic Journal of Ichthyology (M. Goren).

2004 - Member of the Advisory Committee on "Man and the Environment", Yad Yizhak Ben-Zvi (T. Dayan).

2004 - Member of the Board of Directors, the Uri Maimon Hugey Siyur, Keren Kayemet Le'Israel (KKL) (Y. Gavrieli).

2004 - Member of the Central Nomination Committee of Tel Aviv University (Y. Loya).

2004 - Member of the Landau Prize Committee (T. Dayan).

2004 - Member of the National Parks and Nature Reserves Council of Israel (T. Dayan).

2004 - Member of the steering committee of the Red Sea monitoring program. Ministry of the Environment (M. Ilan).

2004-2005 Advisor, internship training in Museum Studies, Tel Aviv University (Y. Gavrieli).

2004-2005 Chair of the organizing committee, Yad Ben-Zvi International Seminar on the 'Environmental History of Israel' (Y. Gavrieli).

2005 Jul Academia Sinica, Institute of Zoology, Visiting Professor (Y. Benayahu).

2005 Jul University of the Ryukyus Okinawa, Japan, Visiting Professor (Y. Benayahu).

2005 Sep Visiting Scientist in the Physical Sciences Research, Lucent Technologies - Bell Labs (M. Ilan).

2005 Chair of the Management and Conservation of Mediterranean Ecosystems: a one day scientific conference, Tel Aviv University (T. Dayan).

2005- Head of the Faculty of Life Sciences Graduate School (M. Ilan).


2005 Judge of the National Youth Science Fair, Science Museum, Jerusalem (T. Dayan).

2005 Member of the scientific advisory committee and invited to chair a public session of The 4th Congress of the Federation of the Israel Societies for Experimental Biology, Elat, Israel (T. Dayan).

2005- Member of the steering committee for the National Collections of Natural History, under the auspices of the Israel National Academy of Sciences and Humanities (T. Dayan).

2005-2007 Member of the selection committee for Fulbright post-doctoral fellowships (T. Dayan).
Visiting scientists at the National Collections

The attached list includes visitors from institutions other than Tel Aviv University who came personally to use the natural history collections of Tel Aviv University in the past academic year. Much use is made of the collections by additional scientists who did not visit them in person. Some scientists get identification services for their research projects and others have lists of specimens and locations mailed to them for various types of research. Moreover, during this period numerous parcels containing scientific materials were mailed abroad for researchers in their home institutions.

<table>
<thead>
<tr>
<th>Date</th>
<th>Name</th>
<th>Institute</th>
<th>Country</th>
<th>Taxonomic group</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004 Dec</td>
<td>D. Bar Yosef</td>
<td>University of Haifa</td>
<td>Israel</td>
<td>Molluscs</td>
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<tr>
<td>2004 Dec</td>
<td>O. Hazofe</td>
<td>Israel Nature and Parks Authority</td>
<td>Israel</td>
<td>Birds</td>
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<tr>
<td>2004 Dec</td>
<td>L. Bouchneb</td>
<td>Bordeaux</td>
<td>France</td>
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<tr>
<td>2004-2005</td>
<td>N. Lev-Tov</td>
<td>Hebrew University</td>
<td>Israel</td>
<td>Anthropology</td>
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<tr>
<td>2004-2005</td>
<td>Y. Nagar</td>
<td>Israel Antiquity Authority</td>
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<td>Anthropology</td>
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<tr>
<td>2005 Jan</td>
<td>G. Gettens</td>
<td></td>
<td>Netherlands</td>
<td>Birds</td>
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<tr>
<td>2005 Jan</td>
<td>Z. Brosh</td>
<td>Israeli Air Force</td>
<td>Israel</td>
<td>Birds</td>
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<tr>
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<td>I.M.S.</td>
<td>Israel</td>
<td>Molluscs</td>
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<tr>
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<td>Israel Central Bureau of Statistics</td>
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<tr>
<td>2005 Jan</td>
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<tr>
<td>2005 Feb</td>
<td>I. Martinez</td>
<td>Tel Hay Academic college</td>
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<tr>
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<td>T. Assmann</td>
<td>University of Lueneburg</td>
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<tr>
<td>2005 Feb</td>
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<td>Israel</td>
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<td>2005 Feb</td>
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<td>Country</td>
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<td>Italy</td>
<td>Entomology</td>
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<td>2005 Mar</td>
<td>M. Kaofman</td>
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<td>F. Bocquentin</td>
<td>CNRS University of Bordeaux</td>
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<tr>
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<td>Y. Bar-Ze’ev</td>
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<td>Israel</td>
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<tr>
<td>2005 Jun</td>
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<td>Israeli Air Force</td>
<td>Israel</td>
<td>Birds</td>
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<tr>
<td>2005 Jun</td>
<td>G. Bar-Oz</td>
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<td>Israel</td>
<td>Mammals</td>
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<td>R. Yeshuron</td>
<td>University of Haifa</td>
<td>Israel</td>
<td>Mammals</td>
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<tr>
<td>2005 Jun</td>
<td>R. Shafir</td>
<td>Israeli Air Force</td>
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<td>Mammals &amp; Birds</td>
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<td>2005 Jun</td>
<td>A. Boniheati</td>
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<td>O. Rolf</td>
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<td>CNRS University of Bordeaux</td>
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<td>2005 Jun</td>
<td>L. Eaves-Johnson</td>
<td>University of Iowa</td>
<td>USA</td>
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<tr>
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<td>2005 Jun</td>
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<td>2005 Jun</td>
<td>A. Farok</td>
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<tr>
<td>2005 Jun</td>
<td>D. Nadel</td>
<td>University of Haifa</td>
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<td>2005 Jun</td>
<td>M. Nedler</td>
<td>University of Haifa</td>
<td>Israel</td>
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<td>2005 Jun</td>
<td>T. Barneis</td>
<td>UCL</td>
<td>England</td>
<td>Anthropology</td>
</tr>
<tr>
<td>Date</td>
<td>Name</td>
<td>Institute</td>
<td>Country</td>
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<tr>
<td>2005 Jul</td>
<td>S. Nezer</td>
<td>University of Haifa</td>
<td>Israel</td>
<td>Mammals &amp; Birds</td>
</tr>
<tr>
<td>2005 Jul</td>
<td>T. Barneis</td>
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<td>England</td>
<td>Anthropology</td>
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<td>2005 Aug</td>
<td>E. van der Brink</td>
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<tr>
<td>2005 Aug</td>
<td>J. Stock</td>
<td>University of Cambridge</td>
<td>England</td>
<td>Anthropology</td>
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<td>2005 Sep</td>
<td>I. Filin</td>
<td>Ben-Gurion University</td>
<td>Israel</td>
<td>Molluscs</td>
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<td>2005 Sep</td>
<td>N. Sapir</td>
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<td>Israel</td>
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<td>2005 Oct</td>
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<td>2005 Oct</td>
<td>Y.L. Werner</td>
<td>Hebrew University</td>
<td>Israel</td>
<td>Reptiles</td>
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<tr>
<td>2005 Nov</td>
<td>Z. Brosh</td>
<td>Israeli Air Force</td>
<td>Israel</td>
<td>Birds</td>
</tr>
</tbody>
</table>
Support for academic and other courses

The natural history collections are university-based and, as such, their role is also to promote higher education. Some courses are TAU courses, several of which are our compulsory first and second year courses, taught to hundreds of students; however, other universities (Technion, University of Haifa, Open University) use our facilities for their specialized courses, as does the Avshalom Institute. Many Nature Campus activities also take place using the collections for varied audiences.

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Name</th>
<th>Institute</th>
<th>Taxonomic group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faunistics of Mammals (academic course)</td>
<td>Y. Yom-Tov</td>
<td>Tel Aviv University</td>
<td>Mammals, Taxidermist &amp; Museum Class</td>
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<tr>
<td>Insects the Flagship of Biodiversity (academic course)</td>
<td>A. Freidberg &amp; D. Simon</td>
<td>Tel Aviv University</td>
<td>Entomology</td>
</tr>
<tr>
<td>Faunistica (academic course)</td>
<td>Z. Arad</td>
<td>Technion</td>
<td>Mammals &amp; Museum Class</td>
</tr>
<tr>
<td>Vertebrates Anatomy (academic course)</td>
<td>D. Eilam, M. Ovadia &amp; U. Oron</td>
<td>Tel Aviv University</td>
<td>Mammals &amp; Taxidermist</td>
</tr>
<tr>
<td>Introduction to Animal Kingdom: Invertebrates &amp; Vertebrates (academic course)</td>
<td>M. Ovadia &amp; A. Gasith</td>
<td>Tel Aviv University</td>
<td>Mammals &amp; Entomology</td>
</tr>
<tr>
<td>The Invertebrates: Comparative Functional Biology (academic course)</td>
<td>M. Ilan, Y. Benayahu &amp; A. Abelson</td>
<td>Tel Aviv University</td>
<td>Invertebrates, Entomology &amp; Histology</td>
</tr>
<tr>
<td>Osteology And Anthropology (academic course)</td>
<td>I. Hershkovitz</td>
<td>Tel Aviv University</td>
<td>Anthropology</td>
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<tr>
<td>Phsyical Anthropology (academic course)</td>
<td>Y. Rak</td>
<td>Tel Aviv University</td>
<td>Anthropology</td>
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<tr>
<td>Purpose</td>
<td>Name</td>
<td>Institute</td>
<td>Taxonomic group</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
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<tr>
<td>Human Evolution: fossil evidences (academic course)</td>
<td>Y. Rak</td>
<td>Tel Aviv University</td>
<td>Anthropology</td>
</tr>
<tr>
<td>Chapters in Human Evolution (academic course)</td>
<td>Y. Rak</td>
<td>Tel Aviv University</td>
<td>Anthropology</td>
</tr>
<tr>
<td>Ichthyology (academic course)</td>
<td>M. Goren</td>
<td>Tel Aviv University</td>
<td>Fishes &amp; Museum Class</td>
</tr>
<tr>
<td>Bird Fauna (academic course)</td>
<td>N. Leader</td>
<td>Open University</td>
<td>Birds &amp; Museum Class</td>
</tr>
<tr>
<td>Shells and Molluscs in Archeological findings (academic course)</td>
<td>D. Bar-Yosef</td>
<td>University of Haifa</td>
<td>Molluscs</td>
</tr>
<tr>
<td>Guiding Students</td>
<td>G. Bar-Oz</td>
<td>University of Haifa</td>
<td>Mammals &amp; Museum Class</td>
</tr>
<tr>
<td>Bird-Watching</td>
<td>T. Shariv</td>
<td>Avshalom Institute</td>
<td>Birds &amp; Museum Class</td>
</tr>
<tr>
<td>Various seminars</td>
<td>Nature Campus</td>
<td>Israel Nature and Parks Authority</td>
<td>Mammals, Birds &amp; Museum Class</td>
</tr>
<tr>
<td>Various seminars</td>
<td>Nature Campus</td>
<td>Tel Aviv University</td>
<td>Mammals, Birds, Entomology &amp; Museum Class</td>
</tr>
<tr>
<td>Guided tours to schoolchildren</td>
<td>Nature Campus</td>
<td>Tel Aviv University</td>
<td>Mammals, Birds, Entomology &amp; Museum Class</td>
</tr>
</tbody>
</table>
Support for various individuals and organizations

The TAU natural history collections function as a national collection, by providing services to the scientific committee, as well as to other organizations and, to the best of our abilities under currently constrained conditions, also to the general public. Here we list a sample of the services provided by the collections in the past academic year. We apologize that the list is not full, but in the current conditions of under-staffing we are unable to dedicate the human-power to monitor and record all such activities.

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Name</th>
<th>Institute</th>
<th>Taxonomic group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxidermist services (learning the procedure)</td>
<td>R. Shafir</td>
<td>University of Haifa</td>
<td>Mammals &amp; Taxidermist</td>
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<td>Taxidermist services</td>
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<td>Tel Aviv University</td>
<td>Birds &amp; Taxidermist</td>
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<td>Nature Campus</td>
<td>Tel Aviv University</td>
<td>Mammals, Birds &amp; Taxidermist</td>
</tr>
<tr>
<td>Taxidermist services</td>
<td>O. Hazofe</td>
<td>Tel Aviv University</td>
<td>Birds &amp; Taxidermist</td>
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<tr>
<td>Photography</td>
<td>U. Paz</td>
<td>Beit Berl College</td>
<td>Mammals</td>
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<tr>
<td>Photography for the French television</td>
<td>I. Finkelstein</td>
<td>Tel Aviv University</td>
<td>Mammals</td>
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<tr>
<td>Photography for various academic courses</td>
<td>U. Roll</td>
<td>Tel Aviv University</td>
<td>Mammals, Birds, Fishes &amp; Invertebrates</td>
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<tr>
<td>Photography for the Education Department</td>
<td>N. Keinan</td>
<td>Tel Aviv University</td>
<td>Mammals &amp; Birds</td>
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<tr>
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<td>Birds</td>
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<td>Invertebrates</td>
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<td>Beit Usishkin</td>
<td>Mammals &amp; Birds</td>
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<td>Electronic Data</td>
<td>A. Avidur</td>
<td>Lady Davis School</td>
<td>Mammals &amp; Birds</td>
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<td>Electronic Data</td>
<td>M. Fain</td>
<td>University of Haifa</td>
<td>Invertebrates</td>
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