

**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**

**2008/2009 Scientific Report**

**Submitted to the Steering Committee for the National  
Collections of Natural History, the Israel Academy of  
Sciences and Humanities**

The website of The National Collections of Natural History, Tel Aviv  
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## **Introduction**

The academic year 2008/2009 was the fifth in which the natural history collections at Tel Aviv University enjoyed VATAT regular support. It was also the second year that the collections enjoyed the invaluable special support for training and collections improvement and the second year that the collections enjoyed the support of the Ministry of Science, having been declared a Knowledge Center by the ministry. So in terms of training, collections care and improvement, significant steps were made this year to promote the collections as a research infrastructure and to promote collections-based research.

Progress with building a proper facility to house our collections and collections-based activities is steady although somewhat slower than we could have hoped for. The Tel Aviv Municipality has granted us a large building site opposite of the Diaspora Museum gate, adjacent to the Zoological and Botanical Gardens, the best location imaginable. Kimmel-Eshkolot architects were chosen following a closed competition, and we look forward to developing the detailed plans with them. And, of course, we are extremely grateful to our donors, the government ministries, and VATAT for making this possible.

Our report focuses only on academic achievements made with the use of the natural history collections at TAU during the academic year 2008/2009. This use ranges from biogeographic collections-based research, to use as comparative materials in zooarcheological research. In some studies it was the taxidermist who provided support for scientific research. In many others the chief contribution was taxonomic identifications carried out by the curators and collections managers, who regularly support much basic and applied research. Loss of this crucial expertise in Israel has been delayed thanks to the Aliya; if we do not use this delay to develop a new generation of taxonomists, systematists, and biogeographers, we will lose our knowledge of the Israeli fauna and flora. In a university that has shrunk dramatically over the past few

years, and a Faculty that has sadly targeted its zoologists in its downsizing, maintaining collections-based research will be a formidable challenge that should be met with ongoing special and focused support for this research infrastructure and this scientific field. We are particularly worried about the future of positions in taxonomy and biogeography.

A very optimistic note is the establishment of the Israel Taxonomy Initiative, aimed to train the new generation of taxonomists in Israel and to promote biodiversity surveys. This initiative, funded by a philanthropic foundation, gives us hope that we will not lose knowledge of our country's biota, although challenges remain huge. Two former VATAT funded post-docs in the collections, whose expertise is taxonomy, have received ITI post-doctoral fellowships to pursue research abroad. So VATAT funds that were meant to be used as a springboard for increasing the collections research expertise are doing their job very well. Also, Dr. Silvia Blumenfeld, a new immigrant curator of lower plants who enjoyed VATAT funding for over a year received a Giladi fellowship this year. Additionally VATAT support has been highly instrumental in promoting the professional care of the ants, bees, and parasitic wasps collection, and the study of mollusks from archeological contexts. These collections are in the process of sorting, digitizing, and studying, and the improvement in collections care is already significant.

Another optimistic note is the recent hiring of two new faculty members by the Department of Zoology, after many years with numerous retirements and no new recruits, at a total loss of over one third of the department's faculty positions. Among their academic research activities, these new faculty members will also serve as curators: Dr. Shai Meiri, an Alon Fellow whose research is collections-based (mammals and reptiles) has already started serving as our Curator of Higher Vertebrates, and Dr. Frieda Ben-Ami who joins our ranks in a few months, and who was trained by Prof. Joseph Heller, Curator of Mollusks at HUJ, will serve as our Curator of Mollusks.

Naturally, the focus of the report is on activities carried out within Tel Aviv University. Many colleagues from other universities within and without Israel use the collections for research and teaching, but we did not necessarily manage to receive all relevant materials from them in time for this report, so there is more scientific activity than can be discerned from the present report.

## **Progress in 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 upon 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**

The staff members of TAU Natural History Collections continue their activities to promote and preserve the various collections. As in previous years, we have put much effort into advancing our goals. We continue to collect and preserve new scientific materials, rescue and incorporate important private and historical collections, maintain the existing collections, ship scientific material and data, and assist graduate students, academic courses, and “Nature Campus” activities.

During the academic year 2008/2009 we received and incorporated many specimens of various taxonomic groups collected worldwide by the collection curators and staff, students, rangers from the Israel Nature and Parks Authority, and others. Over 29,000 new specimens were added to the various collections during this year.

We continued organizing the dry vertebrate collection in the new specimen cabinets, purchased with the support of VATAT funds. Some 250 new specimens have been preserved and added to the mammal collection and about 300 to the bird collection. These include specimens collected by rangers from the Israel Nature and Parks Authority. Almost 260 new records were added to the reptile collection this past year. Most of these were collected by graduate students during their field work.

Father Schmitz collection was transferred to our collections during 1999. The collection, as we received it from Jerusalem, included specimens preserved in liquid and dry stuffed material. The material preserved in liquid was already treated. The specimens were transferred to new jars, the preservation liquids changed, the species determination reviewed and the data included in the collection database. In the processes 138 reptiles, 59 fish, and 13 specimens of mollusks were treated. The dry material includes a few hundred specimens of mammals and birds. The material received technical taxidermist treatment. Now the specimens are being taxonomically determined, and the data

integrated into our database. Until now 70 birds and 47 mammals were cared for. Most of the specimens were collected at the beginning of the 20th century in the Middle East and Madeira and the adjacent islands.

The Echinodermata collection was reorganized and now the entire collection is digitized and has new labels. In the collection there are about 2,300 specimens belonging to 200 species and 50 families. Most of them were collected in Israel in the Mediterranean and Red sea.

As in previous years, the collections made 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 procedure, tissue samples for molecular analysis were taken from most of the soft coral specimens and preserved.

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 has developed a unique database for this purpose and continues to work with the students, adjusting it to their special needs. More than 3,000 samples were transferred to the collections in the present year by students. The students of Prof. Avital Gasith continue to transfer their collections, consisting of freshwater invertebrates caught in various rivers in Israel, to the National Collections. Together with the samples, the collection managers are provided with the digitized database to assist their incorporation into the National Collections and to help avoid mistakes. Students of Prof. Tamar Dayan have transferred a very large collection to the museum, containing thousands of specimens, of mammals, amphibians, reptiles, and arthropods caught in pitfall traps. The vertebrates among them have been

preserved, identified, digitized, and labeled; the invertebrates were preserved and sorted for future identification. Also students of Dr. Menachem Goren, collecting fish from the Mediterranean and freshwater rivers transferred their samplings together with the collecting data to the museum. Routine work on the insect collection includes absorption and integration of donated collections; labeling and sorting of specimens from collecting trips; identification of and research on select groups (including over 70 shipments of scientific specimens to specialists, mostly overseas, during 2008/9); and preservation activities, such as renewal of naphthalene. Special treatment was required in cases of damage caused by mold and pests. As in past years, we have continued digitizing this collection. Newly, this year we broaden the system to include the new income insects. Each insect gets a unique catalog number immediately when it incorporates in the collection. During the present year, about 19,000 new insects were added to the collection. Vladimir Chikatunov performed an enormous identification work on a beetle collection from pitfall traps and malaise traps in various projects and areas (Upper Galilee, Mt. Carmel, Nizzanim, Adullam, Coastal Plain, Jordan Valley and others). There is a close working relationship between the "Plant Protection and Inspection Services" (PPIS, Ministry of Agriculture) and the insect and arthropoda staff. As in previous years, the collection staff made identifications work and guided the PPIS members.

Sergei Zonstein, curator in the arthropod collection, reports on his work. As in the previous year, field work included about 15 days in the field in central coastal plain sands near Or-Akiva, collecting spiders (Arachnidae) and spider-wasps (Pompilidae). Laboratory work mainly comprised identification of collections made by students, as part of their projects, and establishing a database for these collections.

**Biogeography and taxonomy of sheet-web spiders (Linyphiidae: Araneae)  
in Israel**

**Efrat Gavish-Regev**

Approximately half of the known spider families were recorded from Israel thus far (at least 50 families out of 109 known spider families), and thirteen have been extensively studied by the late Gershom Levy (1937-2009). Yet, there is still a scarcity of knowledge on the taxonomy, biology, and ecology of many of the spider families that occur in Israel and its surroundings. Sheet-web spiders (Linyphiidae) are the second largest family of spiders, with 4,365 species (>10% of all known spider species) in 583 genera. Linyphiids have a worldwide distribution, and are most diverse in the northern temperate regions. The knowledge of linyphiids in semi-arid and arid habitats is limited, and currently only six linyphiid species are reported from Israel. This research project aims to describe and document the linyphiid fauna of Israel, and their geographic distribution ranges.

In the first stage of the project (started at 2008 and still in process) I sorted linyphiid material from the Arachnid Collection of the National Collections of Natural History at Tel Aviv University; the Arachnid Collection of The Hebrew University of Jerusalem; and the research collections of the Ecology Department at Ben-Gurion University of the Negev. The specimens have been identified to species level, when possible. So far we have found 32 linyphiid species; only three were previously reported from Israel. Out of the 32 species, seven are probably new to science and are now being described (Fig. 1). The new species and records are being documented, and figures of some of the specimens were taken using the new stereomicroscope (Discovery V20, Zeiss) that was purchased by the National Collections of Natural History at Tel Aviv University at the end of 2008.

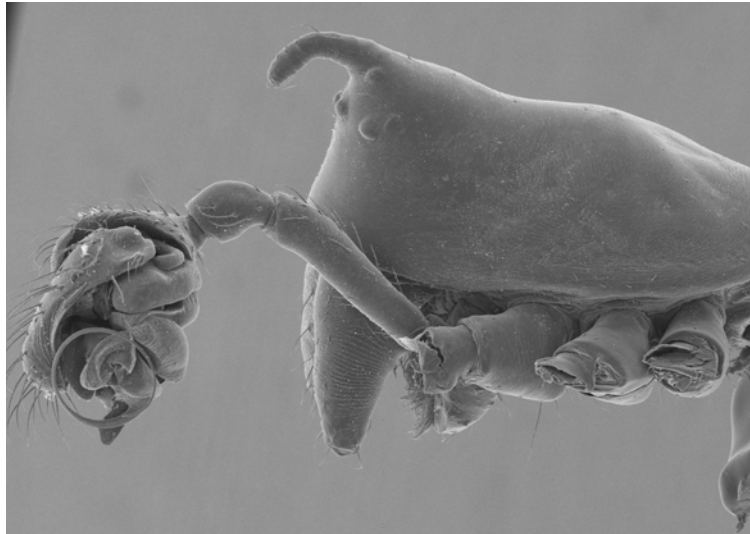


Fig. 1: *Thaumatoncus* sp n 2, SEM: Lateral view of male carapace and left palp. The figure was taken during visit at the Zoological Museum, University of Copenhagen, Denmark.

The spider collection at Tel-Aviv University contains material collected during ecological studies from various regions of Israel by Dr. Yael Mandelik and Arie Landsman (4 linyphiid species so far), Merav Vonshak (9 linyphiid species), Udi Columbus and Tal Levanony, Ina Steinberg, and Orit Skutelsky.

### **Progress Report: Ascidian Collection 2009**

#### **Project: Taxonomic study of the ascidian fauna along the Israeli coasts**

**Noa Shenkar**

Ascidians (Phylum: *Chordata*, Class: *Ascidiacea*), or sea squirts, are the largest and most diverse class of the sub-phylum *Tunicata* (also known as *Urochordata*). They comprise approximately 3,000 species found in all marine habitats from shallow water to the deep sea. Despite the enormous progress that has been achieved in the field of ascidian research worldwide, only a few studies have focused on the ascidians of the Red Sea and the Eastern Mediterranean. The current study's main goal is to establish an up-to-date

museum collection of ascidians of these regions, with a focus on documenting the arrival and spread of non-indigenous species along the Mediterranean coast. In order to allow identification of ascidians to species level, the live material must be fixed in formaldehyde, preventing in many cases DNA-based research for most of the ascidian collections worldwide. The uniqueness of the current collection is that it will enable future molecular based studies on material preserved in ethanol together with classic taxonomic studies on the matching species. The collection currently includes more than 500 from the Red Sea and Mediterranean and is expanding. The cytochrome c oxidase subunit I from these samples is being sequenced in a collaborative effort with the Smithsonian Barcoding of Life project <http://www.barcodinglife.org>. To date, 70 specimens have been identified from the Mediterranean coast of Israel, including seven non-indigenous species. In addition, three new species to science have been discovered at the Red Sea coast of Israel. Our final goal is to publish a revision of the ascidian species of the Gulf of Eilat and the Mediterranean coast of Israel.

### **Ant surveys: The little fire ant (*Wasmannia auropunctata*)**

**Merav Vonshak**

Following the discovery of the little fire ant (*Wasmannia auropunctata*) in Israel at the end of 2005, we conducted a survey, from January 22nd to March 7<sup>th</sup> 2006, in order to evaluate the extent of the infestation. The ants were found in four out of five of the villages that were examined, in agricultural fields and a nature reserve, implying a much larger infestation. The results were set on GIS maps and transferred to the Ministry of Environmental Protection to aid eradication. We later conducted one-day surveys of newly-discovered infestations in Dafna, Ma'abarot, Tel Aviv, Newe Yaraq, Hod Hasharon, Ramot Hashavim and Savion, between October 2006 and September 2008, in some of which individuals from the Ministry of Environmental Protection or the Israel Nature and National Parks Protection Authority participated. All data regarding

the ants' distribution was shared with the Ministry of Environmental Protection. Additionally, for the past 18 months we received 180 ant samples for identification from The Israel Nature and National Parks Authority, The Ministry of Environmental Protection and from different exterminators.

### **Research activities 2008/9: Report for the Israel Academy of Sciences**

**Daniella E. Bar-Yosef Mayer**

The past academic year was dedicated to several activities that relied on research in the malacological collections, based at the Natural History Collections. Those include the study of archaeo-malacological shell assemblages of Natufian sites in Israel, and a Neolithic site in Turkey.

The study of shells from two Late Natufian sites, dated to about 13,000 – 11,500 years ago, were part of a study of the exploitation of the earliest marine resources by humans. The shells from the sites of Hilazon Tachtit Cave in the Western Galilee were studied, as were those of Eynan in the Hula Valley. In both sites the dominant species collected from the Mediterranean beaches were scaphopods, primarily *Antalis dentalis* and *Antalis vulgaris* that are not easily found on the shores of Israel today. Those results were presented at the second international conference on the Natufian Culture, held in Paris. The study was done in collaboration with Ms. Aldona Kurzawska of the Polish Academy of Sciences in Poznan, and with Mr. Henk K. Mienis of Tel Aviv University.

Another discovery revealed that at the site of Eynan the Mediterranean bivalve *Cerastoderma glaucum* served for the first time as raw material for the production of disk beads, the earliest ones that are known to be made of mollusc shell. These occur at the same time as the disc beads that were produced from minerals, primarily apatite. The results are being prepared for publications.

Yet a third discovery related to the Natufian culture, relates to the exploitation of fish. While freshwater fishes are known to have been exploited since at least 23,000 years ago, the first evidence for marine fishing comes from Early Natufian sites such as Hayonim Cave in the western Galilee and Kebara Cave in Mt. Carmel. At the same time, edible shellfish were discovered at El Wad Cave in Mt. Carmel, which provides additional support for maritime activities. Further evidence for fishing comes from material culture that includes fishing gear. This study was carried out in collaboration with Dr. Irit Zohar of Tel Aviv University, and was also presented at the second international conference on the Natufian Culture, held in Paris, 11-17 September 2009.

My research at the Neolithic site of Çatalhöyük, Turkey, continued. This excavation season was dedicated primarily for the identification of the fossil molluscan fauna discovered at the site, in collaboration with Dr. Yesim Isalmoglu of the Geological Research Department, Turkish Institute for Mineral Research and Exploration (MTA) in Ankara. Another aspect of the research was dedicated to thousands of small molluscs that were embedded in the sediments and were apparently used to form the mudbricks that make up most of the site. Those are both small (under 0.5 cm) species, and juveniles of larger ones. Together with Dr. Burçin Gümüş, malacologist at Gazi University in Ankara, we catalogued these shells and are currently in the process of analyzing the results. We expect to see changes over time within the site that might reflect environmental changes in the nearby river. In order to understand the role of these shells in the mudbricks we also conducted an ethnoarchaeological study, in which we analyzed the shell species of mudbricks from the nearby village in which the sources of the sediments and the molluscs are known. Those will be eventually compared to the archaeological materials. This project is on-going and results are not yet available.

The results of all the above projects are being prepared for publication. Future plans involve the study of the earliest shells from Palaeolithic sites in the Levant, in relation to thanatocoenoses on the current shores of Israel.



**Report on the activities in the collection of parasitic wasps (Hymenoptera: Parasitica) of the National Collection of Insects, TAU in 2009**

**Wolf Kuslitzky**

With nearly 22,000 species in 37 subfamilies, the Ichneumonidae constitute one of the largest animal groups. According to the literature 218 species are known from Israel. However, based on the Tel Aviv University collection (TAU) and extrapolations, this number represents only a small part of the actual Israeli fauna of this family. As parasitoids of other insects, the Ichneumonidae are a major factor in the control of insect populations. In the biocontrol of agricultural and forest pests many successful examples are known of the use of Ichneumonidae, including the introduction and augmentation of local populations. One of the most important prerequisites for the use of entomophagous insects for biocontrol of pests is the knowledge of the parasitoid fauna in the treated area.

In order to establish a full data of the Israeli fauna I started to review and collect new specimens for the TAU collections. Ichneumonidae and Braconidae have been collected, mounted on pins and labeled (ca. 1,500 specimens). Other Parasitica superfamilies (Bethyloidea, Chalcidoidea, Proctotrupoidea, Ceraphronoidea and Cynipoidea) have been collected and preserved in alcohol (ca. 1,000 specimens). The newly collected material of Ichneumonidae was sorted to subfamilies. About half of the Campopleginae have been determined to tribes, genera and species prior to being sent to Dr. Horstmann. The survey of the subfamily Collyriinae in Israel is complete, and a preliminary manuscript has been prepared. A selection of ca. 800 specimens of Proctotrupoidea and Ceraphronoidea have been sent to Dr. L. Masner (Ottawa, Canada) for identification.

**Progress Report: Apoidea Collection 2009, Managerial work of the Apoidea collection in TAU collection:**

**Moshe Guershon**

Following last year's preliminary inventory, we know that this important collection contains about 30,000 specimens, with about half already determined and classified within 1,300 species, which are distributed among eight families and approximately 90 genera. The majority of these species are composed of specimens from the Israeli fauna, but it also features a respectable number of representative specimens from all over the world. Managerial work during last year focused on two main areas: technical work of arrangement and maintenance, and scientific work including macro-taxonomy determination and analysis of information from specific groups in the collection.

**Technical-maintenance work:**

- Approx. 150 items that returned from determination to species level by experts abroad were positioned in their correct place in the collection.
- Collection data (place and date) of all the *Osmia* specimens determined to species in the collection were digitalized. In total data were gathered from 1088 specimens, belonging to 122 species of this genus

**Scientific work**

- 1057 undetermined specimens were determined to the genus level.
- The digitized data for the *Osmia* species include records starting from 1932 and until 1991, from circa 150 locations from Mount Hermon in the north to Yotvata in the south. This extremely important data are being analyzed for determination and comparison of spatio-temporal distribution of the different species.
- A survey of the Apoidea fauna of the Nahal Teko'a Reserve was performed in collaboration with the Nature and Parks Authority. The work included collection of wild bees their arrangement and future determination to genus level.

The development of an interactive practical identification key for Israeli bees, which was started last year based on the collection and the data base, is being continued.

**Interim report on the partial revision of the genus *Cataglyphis* and the associated curation activity**

**Armin Ionescu**

Until now I prepared a provisional annotated list of the *Cataglyphis* species of Israel (with synonyms, previous records, notes and material examined) and a key to all these species. The annotated list was composed after the examination of all the TAU specimens and a review of the relevant literature. The number of *Cataglyphis* species of the Israeli fauna has increased from 11 (Kugler, 1988) to 18, and there is a questionable 19th species. The annotated list is written as a first draft of an upcoming paper, which should be ready for submission before December. The following items will also be included:

- A detailed description of 7 species.
- A discussion of the zoogeographic affinities of the Israeli *Cataglyphis* fauna.
- Figures – drawn by an illustrator based on the photos in the key.

The list and identification key may be subject to slight modifications according to the future availability of types for comparison. Nevertheless, I should stress that the fact that some types might not be available for study will not impede the future submission of the MS for publication.

During the work the identification of each specimen in collections was checked. About 500 ants that were considered representative for intra-specific variability were measured and photographed. These specimens form the basis of the new arrangement of the *Cataglyphis* species in TAU.

## **Progress Report for the Paleontological Collection 2008-2009**

**Olga Orlov-Labkovsky and Henk K. Mienis**

During the past academic year Olga Orlov-Labkovsky continued to work on:

1. The preparation of fossil material present in the Paleontological Collection, the organization of a Database for fossils; the description of taxa and the detailed documentation of taxonomic lineages.

She continued to work on thin-sections of Foraminifera from assemblages of the Viséan and Serpukhovian deposits of the Carboniferous system (Upper Paleozoic) in the Middle Tien-Shan (Central Asia, Uzbekistan and Kazakhstan).

This material was revised and has been photographed (about 500 pictures). It will be transferred to the Paleontological Collection as soon as all the slides have been computerized.

2. The stratigraphy and taxonomy of Carboniferous foraminifers. These studies support the international project for a standardization of a globally applicable stratigraphic scale according to the objectives of the International Commission on Stratigraphy (based on materials from Central Asia).

During this period she carried out scientific research work for the project "Discussion about Regional Central Asia unified stratigraphical scheme of the Carboniferous and Permian systems". The results were presented in the article "On Regional Stratigraphy of the Bashkirian and Moscovian Stages in South Tien-Shan (Central Asia)".

Henk Mienis worked on molluscs from the last Inter-Glacial period dated to the MIS 5e isotopic stage which had been collected at 12 sites in Cyprus by Dr. E. Galili (Israel Antiquities Authority) and Dr. M. Sevketoglu (International Cyprus University). So far he managed to identify 217 samples. Part of the results were presented by Ehud Galili during the "15th Annual meeting of the European Association of Archaeologists" (15-20 September 2009, Riva del Garda, Italy).

The numerous samples of fossil molluscs which formed part of the Derk A. Visker Mollusc Collection have been transferred to a separate cupboard. This cupboard contains also the rich material of fossil freshwater molluscs from Kos and Rhodes from the former collection of Prof. Hanan (Hans) Bytinski-Salz. The latter material will be studied in the coming academic year. The speciation which took place among the Melanopsidae and Viviparidae on those Mediterranean islands is rather similar to that of the same families present in the sediments of Gesher Benot Ya'aqov, which material is currently being studied by Henk Mienis and Dr. Shoshana Ashkenazi at the Hebrew University of Jerusalem.

#### **New acquisitions**

The following material was donated to the Palaontological Collection:

<b>Name</b>	<b>Brief description</b>
Y. Aderet	Molluscs from Har Karmel
B. Dell'Angelo	Molluscs from the Pliocene of Italy
E. Galili	Mollusc from the Pleistocene of Cyprus
O. Karmon	Molluscs from the Negev
H.K. Mienis	Echinodermata from the Negev

#### **Progress Report for the Mollusc Collection 2008-2009**

**Henk K. Mienis and Revital Ben-David-Zaslow**

#### **Research**

During the academic year 2008/9 several research projects were carried out in the Mollusc Collection. A revision of the Cardiidae occurring in the Gulf of Aqaba by Henk Mienis resulted in the description of two new taxa: *Lunulicardia orlini* and *Lyrocardiumanaxium dekkeri*. Dirk Fehse (Germany) and Jozef Greco (Slovakia) finished their revision of the Mediterranean and Erythraean Triviidae present in the collection. This has led among others to the description of a new species *Trivirostra dekkeri*.

All possible type samples have been separated from the general collection. The status of that material has been checked with the original descriptions. Holotypes, paratypes and syntypes are now stored in a separate cupboard. A few type specimens seem to be either missing from or misplaced in the collection. In the coming year we will try to locate them.

The presence of far too many invasive species among the land- and freshwater molluscs of Israel remains a subject of serious concern. Two recently discovered tropical freshwater gastropods in Israel: *Tarebia granifera* and *Thiara scabra*, have now been found to live together in 'En Saharon, Emeq Bet Shean by Yaron Krotman and Guy Harlev (Mienis, Krotman & Harlev, 2009).

Temporary workers arriving from Thailand continue their attempts to smuggle living freshwater gastropods into Israel including taxa not encountered before by inspectors of the Department of Plant Protection & Inspection Services of the Ministry of Agriculture (Mienis, 2009). Of the Giant African snail *Achatina fulica* viable populations have been found in gardens in Tel Aviv.

Attention was also given to the arrival of new Lessepsian migrants in Israel. Among the molluscs collected in a former saltpan near Atlit Kfir Gaier found three Nudibranchs, which had not been reported before from the Mediterranean coast of Israel: *Melibe viridis* (= *fimbriata*), *Philineopsis cyanea* and an unknown Indo-Pacific species of *Elysia*.

Like in previous years the Mollusc Collection played an important role in the study of archaeomalacological material not only from Israel but also from abroad. These studies are being carried out by Henk Mienis and Dr. Daniella Bar-Yosef Mayer (see her own report), while advice is regularly being given to Mrs. Inbar Ktalav, an independent worker on archaeomalacological material. Numerous samples of shells from archaeological excavations were compared with contemporary material in the shell collection in order to verify the identifications.

Two reports concerning the excavation of Horvat Shallale in the Carmel Mountains, authored by Henk Mienis, appeared in a book edited by the excavator Prof. Shimon Dar (2009): Shallale: Ancient city of Carmel. A report on the shell and crab remains found during the excavation of the Acropolis of Aphek-Antipatris by the late Prof. Moshe Kochavi, has also been finely published (Mienis, 2009).

The cooperation between Henk Mienis and Dr. Burçin Aşkim Gümüs of the Gazi University in Ankara, Turkey on the distribution of the Clausilid land snail *Papillifera bidens* outside its native range, has resulted in another paper on the presence of that species at ancient sites. This time the North-African coast was subject of a short paper.

However, the recent collection played a major role in solving a problem concerning the proper identities of some shell beads excavated at several Middle Paleolithic sites in Morocco. The results of that multi-national study were incorporated in a special feature issue of the Proceedings of the National Academy of Sciences (of North America) under the title: Out of Africa: Modern Human Origins (D'Errico, et al., 2009).

Currently the archaeomalacological material of several other sites are being studied or the results are being prepared for publication: Tel Malhata (Excavator: Prof. Itzhaq Beit-Arieh), Yavne-Yam (Excavator: Prof. Moshe Fischer), Derekh Namir, Tel Aviv (Dr. Edwin C.M. van den Brink) and others.

Another chapter concerning the distribution of *Papillifera bidens* at ancient sites, this time along the east coast of the Adriatic Sea, is also underway (Gümüs & Mienis).

### **New material, identification and computerization**

The ongoing research project dealing with "The impact of biological invasions and climatic change on the biodiversity of the Mediterranean Sea", carried out

by Dr. M. Goren and Dr. B.S. Galil, has produced also this year numerous samples of cephalopods. Noteworthy is the poor representation of gastropods (except for the exotic species *Conomurex persicus* and *Murex forskoehlili*) and bivalves among the trawled material. All the studied material is preserved in ethanol for permanent storage.

This year we identified again a large number of littoral molluscs, which were been collected by Dr. E. Shefer (Israel Oceanographic & Limnological Research Institute, Haifa) at permanent stations scattered along the entire Mediterranean coast for her research on the presence of residues of heavy metals in autochthonous species of *Patella* and the Lessepsian migrant *Cellana rota*.

Dr. S. Moran and Mrs. S. Vaisman sent us for identification some 20 samples of land snails intercepted by inspectors from the Plant Protection & Inspection Services of the Ministry of Agriculture & Rural Development, which were found on imported and exported agricultural and horticultural merchandise. Mrs. Vaisman is a regular visitor of the mollusc collection in order to become more acquainted with the land- and freshwater molluscs of Israel, with special emphasis on the economically important species among them

New material was also regularly received from colleagues and friends in Israel and abroad (see new acquisitions). Especially noteworthy was the recent arrival of some 650 samples of gastropods belonging to the family Neritidae, which were donated by Mr. Gary Gordon from Warner Robins, Georgia, U.S.A.

Between all these various activities we have focused our efforts especially on the incorporation of the very large collection of Zvi Orlin, a private shell collector from Qiryat Motzkin, into the general Mollusc Collection. It will take at least another year before all his material will be registered and properly labeled. The identifications are being carried out by Henk Mienis, while Revital



Ben-David Zaslav, Avigail Ben-Dov and especially Oz Rittner is dealing with the computerization and labelling of the material.

At the moment 45561 samples representing 6616 taxa in the mollusc collection have been digitized. Most of the new species and subspecies which we could add this year to the collection (1131) were from the collection Orlin.

### **New acquisitions**

New material has continued to arrive. All these new samples are immediately identified and prepared for permanent storage.

During the academic year 2008/2009 material was received directly or indirectly from the following persons:

Name	Brief description of the material
M. Adler	Land snails from Germany
P. Bailey	Marine molluscs world wide
U. Bar-Ze'ev	Land snail from Israel and Croatia
B. Dell'Angelo	Marine molluscs from Italy, Corsica, France, land snails from Italy and Ukraine
B. Dharma	Neritidae from Indonesia
K. Dhondt	Marine molluscs from various localities
A. Dolev	Freshwater molluscs Israel
A. Dotan	Marine molluscs Bay of Akko
K. Gaier	Marine molluscs from Atlit and Mihmoret
B. Galil	Marine molluscs from the Eastern Mediterranean
A. Gasith	Marine molluscs from the salt ponds of Atlit Freshwater molluscs from Israel
G. Gordon	Neritidae world wide
M. Goren	Marine molluscs from the Eastern Mediterranean
E.L. Heiman	Cypraeidae
E. Heyfetz	Marine molluscs from the Black Sea (Ukraine)
M. Keppens	Marine molluscs from various localities
D. Mienis	Land snails from Israel
H.K. Mienis	Land snails from Israel; large selection of world-wide Neritidae
E. Orbach	Land snails from Israel
O. Orlov-Labkovsky	Land snails deom Austria
T. Piersma	Freshwater mussels from the Netherlands

O. Rittner	Land snails from Israel, France and Czechia
G. Sangioulouglou	Land snails from Greece
E. Schwabe	Neritidae from Western Samoa
E. Shefer	Patelli-form Mediterranean marine molluscs from Israel
Y. Sinai	Land snails from Israel
B.S. Singer	Marine molluscs from the Gulf of Aqaba
M. Weisz	Marine molluscs fouling Elat
S. Vaisman	Molluscs intercepted by inspectors of PPIS, Ministry of Agriculture

### **Type Material**

Type material of the following six, recently described taxa have been lodged in the collection: *Diminovula fainzilberi* Fehse in Lorenz & Fehse, 2009, *Homalocantha anatomica elatensis* Heiman & Mienis, 2009, *Ipsa childreni leforti* Heiman, 2009, *Lunulicardia orlini* Mienis, 2009, *Lyrocardiumanaxium dekkeri* Mienis, 2009 and *Pustularia cicercula avrilae* Heiman, 2009.

A full list of type specimens located so far in the Mollusc collection is presented elsewhere.

### **The Malacological library**

The library of the Mollusc Collection, a most important tool for taxonomic and systematic studies, has grown this year considerably. After the donation of his private shell collection in September 2008, Mr. Zvi Orlin donated this year 54 modern malacological works to the library. A large part of the library of Henk Mienis has also been received, while most of the shell related journals, which the Israel Malacological Society receives on a regular base, found also a permanent place in the premises of the Mollusc Collection. In this way we are on the right way of becoming less dependant on libraries elsewhere.

**PROVISIONAL CATALOGUE OF TYPE SPECIMENS IN THE  
MOLLUSC COLLECTION OF THE TEL AVIV UNIVERSITY  
Henk K. Mienis**

During the ongoing computerization of the Mollusc Collection 65 type samples belonging to 49 different taxa have been located so far in the National Collections of Natural History of the Tel Aviv University. This type material, consisting of holotypes, paratypes and syntypes, is listed here in systematic order.

MOLLUSCA

LORICATA

Family Ischnochitonidae

*Cryptoplax enigmaticus* Leloup, 1980

Holotype TAU MO 7158: Gulf of Aqaba, Israel, Elat, on Acropora.

GASTROPODA

Family Scissurellidae

*Sinezona tricarinata* Yaron, 1983

Paratype TAU MO 44595: Gulf of Aqaba, Egypt, Nabek, Shurat el Gharqana.

Family Trochidae

*Clanculus (Clanculopsis) korkosi* Singer, Mienis & Geiger, 2000

Paratype TAU MO 42905: Gulf of Aqaba, Egypt, Dahad, Blue Hole.

*Gibbula (Colliculus) virescens* F. Nordsieck, 1972

Paratypes TAU MO 58870/5: Israel, Shiqmona.

*Gibbula (Magulus) apicalis* F. Nordsieck, 1972

Paratypes TAU MO 58871/8: Israel, Shiqmona.

Family Neritidae

*Nerita adenensis* Mienis, 1978

Paratypes TAU MO 65196/3: Yemen, Aden, Crater Beach east of the isthmus.

*Nerita ascensionis deturpensis* Vermeij, 1970

Paratypes TAU MO 65315/2: Brazil, Fernando de Noronha, Baia de Sueste, south coast Ilha, lava.

*Neritina valentina* Graells, 1846

Syntype TAU MO 62430: Spain, Valencia, Venta del Conde.

*Theodoxus altenai* Schütt, 1965

Paratype TAU MO 65195: Turkey, Vilayet antalya, Bunarbaşa Gölü near Yeniköy.

Family Cerithiidae

*Gourmya (Gladiocerithium) argutum barashi* F. Nordsieck, 1972

Paratypes TAU MO 58865/50+: Israel, Shiqmona.

*Gourmya (Thericium) aluchensis* F. Nordsieck, 1972

Paratypes TAU MO 58864/2: Israel, Shiqmona.

Family Bithyniidae

*Bithynia pseudemericia* Schütt, 1964

Paratypes TAU MO 55548/4 and 62775/4: Turkey, Lake Bunarbaşa near Yeniköi.

Family Hydrobiidae

*Belgrandiella pageti* Schütt, 1970

Paratypes TAU MO 63547/15: Croatia, cave near the source of the Rudnica near Ogulin.

Family Pyrgulidae

*Chilopyrgula zilchi* Schütt, 1964

Paratypes TAU MO 62634/5: Turkey, Lake Bunarbaşa near Yeniköi.

Family Rissoidae

*Putilla (Globisetia) ovulata* F. Nordsieck, 1972

Paratype TAU MO 42473/1: Israel, Shiqmona.

*Setia levantina* Bogi & Galil, 2007

Paratype TAU MO 52282: Israel, off Tel Aviv, depth 20-25 mm.

Family Strombidae

*Euprotomus aurora* Kronenberg, 2002

Paratypes TAU MO 30015/3: Gulf of Aqaba, Israel, Elat.

Family Cypraeidae

*Ipsa childreni leforti* Heiman, 2009

Paratypes TAU MO 62626/5: Tahiti, Huahine.

*Lyncina carneola titan* Schilder, 1962

Paratype TAU MO 42904: Kenya, Shimoni.

*Pustularia cicercula avrilae* Heiman, 2009

Paratypes TAU MO 62623/2: Tuamotu Islands, Takapoto.

Family Ovulidae

*Diminovula fainzilberi* Fehse in Lorenz & Fehse, 2009

Paratype TAU MO 42521: Eritrea, Dahlak Arch., 015°08'N 040°18'E, depth 9 m.

*Primovula eilatensis* Cernohorsky, 1972

Paratype TAU MO 42906: Gulf of Aqaba, Israel, Elat, depth 15 m.

Remark: The holotype of *Primovula eilatensis* should also be in the TAU collection according to the original publication, however, so far we failed to locate it.

#### Family Triviidae

*Trivostra dekkeri* Fehse & Grego, 2009

Paratype TAU MO 42433: Gulf of Aqaba, Israel, Elat.

Paratype TAU MO 47152: Red Sea, Egypt, Sinai, Ras Umm Sidd, under stone.

#### Family Muricidae

*Drupa ricinus hadari* Emerson & Cernohorsky, 1973

Paratypes TAU MO 42408/3: Gulf of Aqaba, Israel, Elat.

*Homalocantha anatomica elatensis* Heiman & Mienis, 2009

Holotype TAU MO 61533: Gulf of Aqaba, Israel, Elat.

Paratype TAU MO 61532: Gulf of Aqaba, Israel, Elat.

*Muricopsis atra* F. Nordsieck, 1972

Paratypes TAU MO 58866/2: Israel, Shiqmona.

*Muricopsis spinulosa obsoleta* F. Nordsieck, 1972

Paratypes TAU MO 58867/4: Israel, Shiqmona.

#### Family Coralliophilidae

*Latiaxis (Babelomurex) fearnleyi* Emerson & d'Attilio, 1965

Paratype TAU MO 41882: Australia, Queensland, Cooktown.

#### Family Nassariidae

*Naytiopsis granum flammulata* F. Nordsieck, 1972

Paratypes TAU MO 58868/25+: Israel, Shiqmona.

*Nassarius jeanmartini* Kool & Dekker, 2006

Paratypes TAU MO 58900/2: Reunion, Baie de St. Paul, depth 40-60 m.

#### Family Buccinidae

*Cantharus scabrum unicolor* F. Nordsieck, 1972

Paratype TAU MO 58872/1: Israel, Shiqmona.

#### Family Fasciolariidae

*Fusinus (Barbarofusus) suturalis* F. Nordsieck, 1972

Paratypes TAU MO 58869/7: Israel, Shiqmona

Family Turridae

*Mangelia melitensis* Cachia & Mifsud, 2008

Paratypes TAU MO 57001/3: Malata, off Rdum id-Delli, depth 50 m.

Family Pyramidellidae

*Odostomia (Auristomia) barashi* Bogi & Galil, 1999

Paratypes TAU MO 42903/2: Israel, Haifa Bay, depth 22 m.

Family Ringiculidae

*Ringicula barashi* Di Geronimo, 1974

Paratypes TAU MO 49641/25: Israel, off Dor, depth 48 m.

Paratypes TAU MO 49642/15: Israel, off Atlit-Dor, depth 48 m.

Paratypes TAU MO 49643/21: Israel, off Bat Yam-Asdod, depth 37 m.

Paratypes TAU MO 49644/13: Israel, off Bat Yam, depth 27-36 m.

Paratype TAU MO 49645: Israel off Dor, depth 37 m.

Family Siphonariidae

*Siphonaria acmaeoides paulae* Christiaens, 1980

Paratype TAU MO 50433: Hong Kong, Ping Chau.

Family Enidae

*Paramastus edentatus zilchi* Brandt, 1958

Paratypes TAU MO 57652/5: Lybia, Cyrenaica, Wadi el Gattara and Wadi Tuega.

Family Clausiliidae

*Albinaria (Filumna) elonensis* G. Haas, 1951

Paratypes TAU MO 59420/6: Israel, Elon.

*Elia (Elia) moesta georgi* Forcart, 1975

Paratypes TAU MO 25778/5: Israel, Karmel Ridge.

Paratypes TAU MO 25779/2: Israel, Karmel Ridge.

Paratypes TAU MO 25780/12: Israel, Haifa.

Paratype TAU MO 25781/1: Israel, Hanita.

*Cyclonena geertsi* Grego & Szekeres, 2004

Paratype TAU MO 48978: Peru, Dept. Amazonas, Prov. Luya, Quisango, SW of Chachapoyas, 2800 m.

*Cyclonena sanmarcos* Grego & Szekeres, 2004

Paratype TAU MO 48979: Peru, Dept. Amazonas, Prov. Luya, Quisango, SW of Chachapoyas, 2650 m.

Family Agriolimacidae

*Agriolimax (Agriolimax) jordanicus* Wagner, 1940  
Paratypes TAU MO 59133/2:

Family Hygromiidae

*Trochoidea (Xeroclausa) gharlapsi* Beckmann, 1987  
Paratypes TAU MO 59289/2: Malta, Ghar Lapsi, on the steep slopes of the Dingli Cliffs.

*Trochoidea (Xeroregima) davidiana yedabiana* Brandt, 1959  
Paratypes TAU MO 64638/6: Lybia, 2 km from Agedabia.

BIVALVIA

Family Pectinidae

*Mirapecten yaroni* Dijkstra & Knudsen, 1998  
Paratype TAU MO 16473: Egypt, Tiran Island, depth 68 m.  
Paratype TAU MO 28536/1 valve: Israel, Elat, off Old Port, depth 121 m.

Family Ungulinidae

*Diplodonta moolenbeeki* van Aartsen & Goud, 2006  
Paratype TAU MO 1422: Egypt, Ras Muhammad.  
Paratypes TAU MO 30011/2: Eritrea, Dahlak Arch., Museri Island.  
Paratype TAU MO 30012: Eritrea, Dahlak Arch., Museri Island.

Family Cardiidae

*Lunulicardia orlini* Mienis, 2009  
Holotype TAU MO 59149/1: Gulf of Aqaba, Israel, Elat,  
Paratype TAU MO 28008: Gulf of Aqaba, Israel, Elat.  
Paratypes TAU MO 41705/11: Gulf of Aqaba, Israel, Elat.

*Lyrocardiumanaxium dekkeri* Mienis, 2009  
Paratypes TAU MO 41693/3: Gulf of Aqaba, Israel, Elat.  
Paratype TAU MO 62176: Gulf of Aqaba, Israel, Elat, depth 25 m.  
Paratypes TAU MO 62177/2: Gulf of Aqaba, Israel, Elat, depth 20 m.

Family Octopidae

*Octopus nanus* Adam, 1973.  
Holotype TAU MO 902307: Eritrea, Dahlak Arch., Cundabilu Island.

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## Collecting trips and expeditions

A dynamic archive, our Natural History Collections grow annually through donations, research projects, and collecting trips and expeditions. Many research projects have added numerous specimens to our collections, while other collections have benefited from focused collecting trips. Here we report on some of the new collecting activities of our scientists.

### Ichthyological Laboratory

#### **Menachem Goren**

Since January 2008 we carry out a research on “The impacts of biological invasions and climate change on the biodiversity of the Mediterranean Sea”. The project is being carried out within a cooperative framework between the Porter School of Environmental Studies and the Italian Ministry of the Environment, Land and Sea. The project is coordinated by M. Goren (TAU) in cooperation with B. Galil and A. Diament (ILOR). As part of the research we have carried out to date twelve collection cruises along the Israeli coast of the Mediterranean and in Antalya and Iskenderun Bay (Turkey,) where

we enjoyed the collaboration of Dr. Baki Yokes and his students and the invaluable help of local fishermen. Hundreds of thousands of specimens were sorted and examined and many have been preserved and deposited in the collections of fishes and invertebrates. Unfortunately, the extreme shortage of space in the collection halls has severely limited our ability to retain a sufficient number of samples.



## **Collecting trips of the Entomologists**

### **Ariel-Leib-Leonid Friedman**

#### **Israel**

Regular samplings were performed during 2008-2009 on Mount Hermon and on Golan Heights, in Upper Galilee, Jordan Valley, Dead Sea, Negev and the Coastal Plain (particularly in the Nizzanim dunes).

Dr. Wolf Kuslitzky performed massive collecting with Malaise traps, mainly in the Coastal Plain (Ma'agan Mikha'el, Bet Dagan, Giv'at Brenner, Mishmar Dawid, Rehovot, Nizzanim Dunes) and in the Foothills of Judea (Hulda), which resulted in many interesting and rare species, particularly of Diptera and Hymenoptera. The finding of the tiny scuttle-fly, *Rhynchomicropteron* sp. (Diptera, Phoridae), is particularly remarkable, hence since this peculiar (brachypterous) species was found in Israel for the first time, and because of the peculiar biology of this genus, living in intimate symbiosis with termites (Isoptera).

A special sampling of the insect fauna was performed on 31.III.2009 in the Nahal Teqoa' Natural Reserve situated in the Judean Desert. The sampling was performed upon the request of the Israeli Nature and Parks Authority, resulting in around 800 specimens of insects, predominantly Diptera, Hymenoptera and Coleoptera. Several rare species of Diptera, Coleoptera and Formicidae were collected and recorded, including three species of beetles new to the Jordan Valley.

#### **Africa**

Dr. Vasiliy Kravchenko performed two collecting trips to Ethiopia, in April-May 2009 and in October-November 2009. Dr. Kravchenko was collecting moths with light traps in the Central Ethiopia, around and south-west to Addis Abeba.

## **Europe**

Dr. Amnon Freidberg performed a trip to Italy and Germany, primarily for working in the insect collections in Verona, Frankfurt and Bonn, but also for collecting in Northern Italy and near Bonn, which resulted in ca. 700 specimens, primarily Diptera.

## **Benthic biodiversity surveys off the Mediterranean coast of Israel**

### **Bella S. Galil**

In 2009 thirteen campaigns was conducted off the Mediterranean coast of Israel in order to sample the benthic biota. Bella Galil, Mel Cooper, Limor Shoval, Eva Mizrahi, Kinneret Gal and Guy Paz participated in the cruises that took place aboard the R/V Shikmona and Etziona of the National Oceanographic Institute, IOLR. The surveys were conducted as part of baseline studies or monitoring surveys (off Palmahim, 05.2009, 09.2009, 37m depth, box core and trawl samples; off Ashdod, 05.2009, 08.2009, 12m depth, grab samples; off the coastal streams, 08.2009, 7-15 m depth, grab samples; Deep Sea, 07.2009, 1300 m depth, box core and trawl samples). The macrofaunal samples – several hundred specimens – include rare records for the Israeli coast and new records of alien species (in press). The material is housed in the Natural History Collections, Department of Zoology, Tel Aviv University, Israel

## **Activity report: November 1, 2009**

### **Yehuda Benayahu**

1. Comprehensive collection of soft corals was conducted by Y. B. in Taiwan including Kenting National Park, Penghu Is. and NE Taiwan during July-August 2008. Ca 200 samples were collected in various reef sites and habitats there. This trip was an additional survey in Taiwan, following 4 previous ones, conducted in an attempt to investigate the soft coral biodiversity in the region and to characterize the faunistic differences between sites. A previous collection conducted at Penghu Is. (2006) yielded 11 new species (not described yet) and it is anticipated that the current collection contains additional ones.

2. Bases on a collection conducted in Hong Kong by Y.B. in December 1999 which is deposited at ZMTAU, three new species of soft corals were described. The new species belong to the genera *Paraminabea rubeusa* (Benayahu & Fabricius, 2009), *Sarcophyton tumulosum mortoni* (Benayahu & Ofwegen, 2009) and *Lobophytum* (Benayahu & Ofwegen, 2009). Two publications which summarize the findings of this survey have already been accepted for publication.

3. During a visit to Leiden Museum, the Netherlands soft coral material from La Reunion, Taiwan and Singapore, all deposited at TAU, was investigated. The results of these studies will be published later during 2010.

4. During a visit to Senckenberg Museum, Frankfurt, Germany (March, 2009). Y.B. examined all type material of the soft corals, family Xenidiidae, which is deposited there. All types were photographed. Small pieces were removed from them and later will be used for preparation of permanent slide mounts to be used as reference while identifying material of that genus.

**The International field meeting of the I.U.G.S. Subcommittee on Carboniferous Stratigraphy in Russia**

**Olga Orlov-Labkovsky**

Recently I was invited to participate in the International field meeting of the I.U.G.S. Subcommittee on Carboniferous Stratigraphy "The historical type sections, proposed and potential GSSP of the Carboniferous in Russia" 11-19 August 2009 (Moscow –Ufa – Sterlitamak -Sibai).

The principal objectives of the excursion were to examine the key Carboniferous sections in the south part of the Moscow Basin (August, 11-12) and southern Urals (Bashkiria) (August, 13 - 19). During the excursions we paid attention to the lithology and biostratigraphy of the Carboniferous sections and intra- to interbasinal correlations; shallow and deep-water carbonates; paleosols, bioherms and cephalopod-rich facies; an overview of the Carboniferous fossil record in Russia including a discussion of major zonal schemes and their correlation; and examination of Carboniferous GSSP candidate sections. The Scientific meeting was held in Sibai (Southern Urals) on 17 August.

The meeting started in Moscow (on August, 11-12th). The Moscow Basin is the type area of the Global Serpukhovian, Moscovian, Kasimovian and Gzhelian Stages of the Carboniferous system. During two days, we visited the Novogurovsky Quarry (Upper Visean – Serpukhovian deposits), the Zaborie section (the lectostratotype of Serpukhovian Stage), the Domodedovo section (the neostratotype of Moscovian Stage and Myachkovian substage, Kasimovian Stage) and the Gzhel section (the stratotype of the Gzhelian Stage).

After the flight from Moscow to Ufa, we continued our trip concerning the sections of Bashkiria. During two days (13-14 August), we examined the key sections in the Western Urals: the Basu Section (the Moscovian age of the carbonate deep-water succession with Conodonta and Fusulinida), the Usolka

Section (a potential GSSP locality for the base of the Gzelian Stage), the Sikaza and Zigan Sections (Devonian – Carboniferous transition).

15-19 August. Our trip proceeded on the route Sterlitamak - Sibaj through the Southern Ural Mountains with a stop in order to examine the Serpukhovian terrigenous - carbonate sediments in the Kugarchi section near the village of Kugarchi (the Central Urals structural zones). Near Kugarchi we approached the mountain pass in the Ural Mountains. The road crosses the Central Uralian, Uraltau and Main Uralian Fault zones, the Magnitogorsk zone and the East Urals. We examined the following key sections in the East Urals: the section Verkhnyaya Kardailovka near the village of Verkhnyaya Kardailovka, which is a candidate for the Viséan-Serpukhovian boundary GSSP and includes deep-water carbonates containing abundant ammonoids; the section Khudolaz – in order to examine the Viséan, Serpukhovian and Bashkirian shallow-water carbonates with corals and brachiopods; the sections Bolshoi Kizil, along the Bolshoi Kizil River (tributary of the Ural River) in order to examine the Viséan shallow-water carbonates, the Serpukhovian algal and coral bioherms and the Bashkirian bioherms.

The conference session was held in the Sibai Hotel on August, 17th. I had a poster-presentation with the theme "The Viséan/Serpukhovian boundary and foraminifers in the Middle Tien-Shan".

During the fieldwork sessions I managed to collect a few very interesting samples.

The following International field meeting of the I.U.G.S. Subcommittee on Carboniferous Stratigraphy will take place in China in November 2010 (Yashui section, Guizhou, South China).

## **Collecting in the Netherlands and a visit to the Zoological Museum of Amsterdam**

**Henk K. Mienis**

In the autumn of 2009 I brought again a visit to the Netherlands. During the period 15 September – 16 October fieldwork was carried out in the provinces North-Holland, Flevoland and Friesland, while the Zoological Museum of Amsterdam was visited three times.

The fieldwork was carried out with the following objectives:

- a. The evaluation of the status of populations of *Hygromia cinctella*, an invasive land snail, in Purmerend, North-Holland, after the "icy" winter of 2008/9;
- b. A survey of the beaches along the western banks of the IJsselmeer for the presence of the invasive freshwater molluscs *Dreissena bugensis* and *Corbicula fluminea*;
- c. A follow up survey of the land- and freshwater molluscs of "Fort Spijkerboor", a fortification belonging to the former defense line of Amsterdam;
- d. A general survey of land- and freshwater molluscs in the Waterland region of the province North-Holland;
- e. A follow up survey of the freshwater molluscs living in drainage ditches in the dunes N.E. of Oosterend, on the island Terschelling;
- f. A continuation of a general survey of land- and freshwater molluscs of the island Terschelling belonging to the province Friesland.

The work at the Zoological Museum of Amsterdam was focused on:

- a. A study of samples of *Papillifera bidens*, from localities outside the native range of that Clausiliid land snail;
- b. A further study of the literature dealing with the allochthonous presence of *Papillifera bidens* along the east-coast of the Adriatic Sea.



### **The fieldwork**

A total of 86 localities were sampled for the presence of land- and freshwater molluscs. All the collected data were transferred to the database of the project "Mapping of the Molluscs in the Netherlands".

Part of the collected mollusc material has been lodged permanently in the Mollusc Collection of the National Collections of Natural History of the Tel Aviv University.

The main results of the fieldwork were as follows:

- a. Already known populations of the Mediterranean invasive land snail *Hygromia cinctella* in Purmerend, did not show any negative effects of the relatively "icy" winter of 2008/9. During that winter most of the canals, ditches and lakes were covered with ice for at least a few days, an event which had not occurred in the last 10 years. In addition several new localities could be registered of that snail in Purmerend and Monnickendam.
- b. The S.E.-Asian invasive mussel species *Corbicula fluminea* was found at eight localities along the IJsselmeer-coast of North-Holland and at one locality in Flevoland; while *Corbicula bugensis*, a species native to the river Bug in Ukraina, was collected at five beaches along the IJsselmeer in North-Holland and one in Flevoland.
- c. In the autumn of 2008 35 species of land- and freshwater molluscs were found on Fort Spijkerboor. This year the fortification was searched for several species supposed to be present due to the fact that they are known from areas in the vicinity of it. In this way nine additional species were located including the freshwater snail *Bathyomphalus contortus*, a species not recorded from any of the additional four fortifications situated in the Beemster.
- d. During the general survey of land- and freshwater molluscs in Waterland two species of Clausilidae were found under pieces of poplar-wood in a former wooden-shoe factory in Monnickendam: *Alinda biplicata* and

*Clausilia bidentata*. The latter is a very rare species in that area of North-Holland.

- e. In 2008 the water in the drainage ditches of the dunes N.E. of Oosterend, Terschelling, varied from 0.5-1.5 m depth. This year most of the ditches were completely dried out. Here and there pools were present with a depth of 1-10 cm. Interestingly even in the smallest puddle (100x30 cm) with a water level of just over 1 cm specimens of the three-spined stickleback *Gasterosteus aculeatus* were still present. At least the bivalves *Sphaerium corneum* and a *Pisidium* species formed new records for this area.
- f. During the general survey of the mollusc fauna of Terschelling the presence of *Anodonta anatina*, an introduced freshwater mussel, was confirmed. On a slope of the dunes near West-Terschelling a curious color variety of the common garden snail *Cepaea nemoralis* with transparent spiral bands and a white lip (instead of darkbrown to black bands and lip). This variety *hyalozonata* has to be considered a very rare colour morph.

The visit to the Zoological Museum in Amsterdam resulted in many additional records of *Papillifera bidens* from countries along the Eastern Adriatic, Greece, Spain and some from North-Africa. In its very rich library also several old works were located dealing with the fauna of former Yugoslavia and Albania.

Unfortunately this was most probably my last visit to the mollusc collection of that institute, which I have visited regularly since 1958 and of which I became an Honorary Associate in 1971. All the collections in Amsterdam will be transferred to the "Naturalis" in Leiden very soon and the first one will be the mollusc collection.

I would like to thank Mr. Xander Meijers of the "Society for Nature Monuments" for his permission to continue my mollusc survey of Fort Spijkerboor. I also like to thank my friend and longtime colleague Robert G. Moolenbeek for his hospitality at the Zoological Museum of Amsterdam.

## **The Israel Taxonomy Initiative**

Conservation of biodiversity – the variety of life forms on earth – depends on scientific knowledge and expertise. Government agencies, research institutes, and conservation organizations around the globe have identified an alarming gap between existing taxonomic knowledge of biodiversity and the need for this information to guide conservation practices. In order to identify the great majority of living organisms, to understand the evolution of life, and to halt the loss of species, taxonomic research is essential, but the state of the discipline is presently inadequate. Currently many tools – morphological, biochemical, and genetic – as well as sophisticated models and software, are available for taxonomists, but basic research lags seriously behind needs. The Millennium Ecosystem Assessment – a UN taskforce to review the trends and implications of changes in global ecosystems - identifies the lack of knowledge of species and their distributions as one of the impediments to sustainable development; the international treaty of the Convention on Biological Diversity initiated the Global Taxonomy Initiative in an effort to remedy this situation.

In Israel, where geographic, topographic, and climatic conditions have produced amazing and unique diversity of life, taxonomic research is dwindling severely. A recent report submitted to the Israel Academy of Sciences and Humanities demonstrated that within 10 years, the average period required to train a young taxonomist, Israel would have no scientists in research or teaching positions who can train the next generation of taxonomists. Thus, a major and urgent effort is required to salvage this field and to ensure the continuation of a critical discipline.

In addition to nature and environmental conservation, taxonomic research has applied implications for agriculture the economy, human welfare and health; it is therefore crucial that it remains viable in face of fleeting fashions in scientific research.

The Israel Taxonomy Initiative is a consortium of government ministries and agencies, research universities and higher education institutions that aims to promote training of taxonomists and basic knowledge of Israel's biodiversity by:

- Providing doctoral and post-doctoral fellowships;
- Providing funding for overseas training for graduate students;
- Providing funding for biodiversity surveys;
- Inviting taxonomists from the international scientific community to teach short courses on local species groups.

Our goal is to save Israeli taxonomy and increase our knowledge of biodiversity, thus promoting science and the conservation of Israel's ecosystems, providing support for Israel's agriculture, and developing the sustainable use of Israel's natural assets.

## 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.

- 2002- On-going grant from the Nature and Parks Authority to "rescue" insects on the Golan and Hermon (V. Chikatunov and A. Freidberg).
- 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).
- 2005-2008 Ministry of Agriculture, Milk Board grant to work on *Atherigona soccata*, a pest of sorghum (3 years) (A. Freidberg).
- 2005-2009 Israel Science Foundation: The Emergence of Stone Beads at the Dawn of Farming: Raw Materials, Technology, Chronology and Exchange (Bar-Yosef Mayer, D.E.).
- 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. Geffen and M. Kam).
- 2005-2009 Yad Hanadiv: The Emergence of Stone Beads at the Dawn of Farming: Raw Materials, Technology, Chronology and Exchange (Bar-Yosef Mayer, D.E.).

- 2006- 2010 Sponge (Metazoa: Porifera) phylogenetics using novel molecular markers. The Israel Science Foundation (NIS 270,000 per year). (D. Huchon).
- 2006-2008 Bridging the Rift Foundation research grant. Biodiversity in human-dominated landscapes in the Arava Rift Valley \$50,000 (T. Dayan and Y. Mandelik).
- 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).
- 2006-2009 Israel Science Foundation research grant. Animal bones, ancient populations, and site formation processes: A test case of Dor, a coastal Levantine site (3 year grant; 225,000 NIS [ca. \$50,000] per annum) (T. Dayan and G. Bar-Oz C.I.)
- 2007- 2009 Phylogenomics of Urochordata and its application for detecting evolutionary shifts in vertebrate proteins. MOST - The High Council for Scientific and Technological Cooperation between France-Israel (NIS 108,750 per year). (D. Huchon and E. J. P. Douzery).
- 2007-2008 The Nature and Parks Authority, Israel (\$20,000) (E. Geffen).
- 2007-2010 Ministry of Science, Culture and Sport grant for establishing knowledge center at the national collections of natural history (3 year grant; total of 1,900,000 NIS [ca. \$500,000]) (T. Dayan).
- 2008 Dan David prize to outstanding post-doctoral students of exceptional promise given for the future time dimension in the field of geosciences (Shenkar, N.).
- 2008 Yad Hanadiv grant. Taxonomy for a sustainable future: Promoting biodiversity research in Israel. (5 year grant; total of \$ 1,480,000) (T. Dayan and M. Goren leading a consortium of Israeli universities and government agencies)
- 2008 Yad Hanadiv grant (1 year grant; \$5500) (T. Dayan).
- 2008 Misliya cave project: Dan David Foundation (I. Hershkovitz).
- 2008 The root of violence: Israel Palestinian Science Foundation (I. Hershkovitz).

- 2008 The structure and function of the vertebral epiphyseal ring: Israel Science Foundatio (I. Hershkovitz).
- 2008-2010 Israel-Italy R&D project. The impacts of biological invasions and climate change on the biodiversity of the Mediterranean Sea (Goren, M. and Galil, B.).
- 2008-2010 Ministry of Agriculture and Rural Development Research grant (3 year grant; 240,000 NIS) (T. Dayan and R. Justo-Hanani).
- 2009-2011 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 84,000 total) (T. Dayan P.I. of subproject)
- 2009-2012 Israel Science Foundation research grant. The evolution of activity patterns of mammals: a macroecological and macroevolutionary perspective (3 year grant; *ca.* \$ 40,000 per annum) (T. Dayan).

## 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 who have used the collections for their research. 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

- 2002-2009 Hadass Schteinitz (Y. Yom-Tov and T. Dayan)  
Estimating the effect of global warming on the distribution of Israeli animals.
- 2003-2009 Merav Weinstein (T. Dayan and A. Hefetz)  
Invasive ants of Israel.
- 2003- B. Bahaa (I. Hershkovitz)  
Macro and microstructure of the annulus fibrosus.
- 2004-2008 G. Dar (I. Hershkovitz)  
Spondyloarthropathy.
- 2004- Liat Gahanama (A. Freidberg)  
A revision of the *Schistopterum* clade of Schistopterini.
- 2004- Constantin Grach (A. Freidberg)  
Ecology and biology of coastal dune insects.
- 2005-2009 Amy Shlesinger (Y. Loya)  
Predator-prey interactions between nudibranchs and their sea-anemone prey.
- 2005- Motti Charter (Y. Leshem)
- 2005- Yaron Krotman (M. Goren)  
Fish biodiversity and ecology in oasis habitats in the Dead Sea Valley.
- 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.
- 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- Assaf Zevoluni (Y. Loya)  
Coral community dynamics in bleached and non-bleached coral reefs (Zanzibar vs. Elat).
- 2006- Frida Belinky (D. Huchon and A. Lotem)  
Multiple approaches to solve basal metazoan phylogeny and its implication on intron evolution.
- 2006- O. Hai (I. Hershkovitz)  
Spinal evaluation in Lower Back Pain.
- 2006- Eran Levin (Y. Yom-Tov and N. Kornfeld).  
Ecophysiology of free-tailed bats.
- 2006- Lidar Sapir-Hen (T. Dayan and G. Bar-Oz, University of Haifa).  
Animal bones, ancient populations, and site formation processes: A test case of Dor, a coastal Levantine site.
- 2006- R. Sarig (I. Hershkovitz)  
Interproximal attrition.
- 2007- Y. Aluma (M. Ilan)  
Environment impact on sponge-fungi association.
- 2007- Emmanuelle Cohen-Shacham (T. Dayan)  
Policies for managing ecosystem services
- 2007- Aldona Kurzwaska (Bar-Yosef Mayer, D.E. and M. Kobusiewicz)  
Insight into Hunter-Gatherers' Life: The Role of Dentalium Shells in Late Epipalaeolithic Sites of the Levant.
- 2007- Amir Shitenberg (D. Huchon and M. Ilan)  
Phylogeny and evolution of demosponges.
- 2008- J. Abass (I. Hershkovitz)
- 2008- H. Cohen (I. Hershkovitz)  
Fracture characteristics

- 2008- Ariella Gotlieb (T. Dayan and Y. Mandelik)  
Agriculture and conservation in the Arava Valley
- 2008- H. May (I. Hershkovitz)
- 2008- Noa Sokolover (M. Ilan)  
Bryozoans ecology
- 2009- Omri Bronstein (Y. Loya)  
Bioerosion of reef corals by sea urchins.
- 2009- Ittai Renan (A. Freidberg)  
To be determined.

### **MSc students**

- 2004-2009 Haim Biala (V. Soroker, The Agricultural Research Organization of Israel)  
Ants associated with banana aphids.
- 2004-2008 Adi Ramot (E. Groner and P. Bar, Ben Gurion University)
- 2004- Daniel Yashunski (M. Goren)  
Succession of fish community in planted corals in Elat.
- 2005-2008 Michal Grosovich (Y. Benayahu)  
Habitat partitioning of three azooxanthellate soft corals in Elat (northern Red Sea).
- 2005-2009 Oren Shelef (E. Groner and M. Shachak, Ben Gurion University)
- 2005-2009 Tamir Shelhav (E. Groner and M. Shachak, Ben Gurion University)
- 2005-2009 Kineret Yoktan (Y. Yom-Tov )  
Phylogeography of the orange-tufted Sunbird *Nectarinia osea*.
- 2005- Kfir Gaier (M. Goren)  
The impact of grazing fish on invertebrate communities in eastern Mediterranean.
- 2005- Nimrod Lazarus (Y. Loya)  
Induction of metamorphosis in nudibranch larvae.
- 2005- Osnat Maor (M. Goren)

- Reproductive biology the cyprinid fish *Garra rufa* in the Jordan River basin.
- 2005- Ina Stierberg (T. Dayan)  
Climatic gradients in biodiversity.
- 2006-2009 Z. Kochva (M. Ilan)  
Sponge associated bacteria and their role in production of natural products.
- 2006-2009 Karin Tamar (T. Dayan).  
Archeozoology of Tel Bet Shemesh.
- 2006-2009 Michal Weis (Y. Benayahu)  
Bivalves as colonizers of artificial marine structures at Eilat (Red Sea).
- 2006- Tali Kuperman (I. Hershkovitz)  
Pottery Neolithic populations.
- 2006- Bat Sheva Rotman (M. Goren)  
The biology the balitorid fish *Nemacheilus jordanicus* in the Jordan River basin.
- 2006- G. Tirosh (M. Ilan)  
Sponge community in the Israeli Mediterranean coast.
- 2007-2009 Slava Feldman (Bar-Yosef Mayer, D.E. and S. Shalev)  
Connections between Cyprus and the Levant during the Pre Pottery Neolithic B based on beads movements.
- 2007- Hagit Alphandary (M. Goren and Prof. Henig)  
Analysis of decision making process in the case of Kishon River
- 2007- Hagar Ben-Bassat (Bar-Yosef Mayer, D.E. and A. Gilboa)  
Beads and Pendants at Tel Dor During the Early Iron Age: Origin, Technology and Social Perspectives.
- 2007- Nir Ezra (D. Huchon)  
Phylogeny and evolution of the demosponge family Poecilosclerida.
- 2007- Tamar Marcus (T. Dayan)  
Spatial aspects of climate change and conservation.
- 2007- Dafna Meirovich (Y. Benayahu)

Soft corals of the family Xeniidae at Eilat.

- 2007- Naomi Shifris (Bar-Yosef Mayer, D.E. and A. Gilboa)  
The Phoenician Iron Age II bead assemblage: The Achziv Cemeteries as a Test case.
- 2007- Miri Taub (Goren, M.)  
The impact of recreation activity on the biota in inland aquatic habitats.
- 2008- Albag, O. (M. Ilan)  
Biology of *Topsentia aqabaensis*.
- 2008- Aviv Avisar (T. Dayan and U. Shanas)  
Assessing the impact of visitor pressure in nature reserves.
- 2008- Matan Ben Ari (D. Gerling)  
Bionomics of the whitefly *Dialeurolobus rhamni* in the Judean hills.
- 2008- Naama Gil (D. Huchon)  
Identification of new markers to solve demosponge phylogeny.
- 2008- Hila Lahav (T. Dayan and A. Hefetz)  
Ant communities under different land management practices.
- 2008- Roni Lee (Goren M.)  
Comparative study of reproductive aspects of invaders and native fish in Eastern Mediterranean.
- 2008- Y. Paker (Y. Yom-Tov, A. Barnea and T. Alon-Mozes)  
The wildlife in urban gardens
- 2008- Yahel Porat (T. Dayan and Y. Carmel)  
Different land management practices and their impact on reptile communities.
- 2008- Ittai Renan (A. Freidberg and P. Bar-Yekutiel)  
The effect of dune stabilization on arthropod communities in the Western Negev
- 2008- Ashton J. Spatz (Bar-Yosef Mayer, D.E.)  
Ornamental marine mollusc shells from the Pre-Pottery Neolithic B site of Ayn Abu Nukhayla, Southern Jordan, and implications for exchange networks in the Southern Levant.

- 2008- D. Stein (I. Hershkovitz)  
3D-Reconstruction of the vertebral epiphyseal ring.
- 2009- Itzhak Hoskin (Y. Loya)  
Coral community structure and diversity in protected vs. non-protected coral reefs in Zanzibar
- 2009- Itay Katz (A. Freidberg)  
The Tephritoidea (Diptera) of Israel
- 2009- Hadas Marshall (T. Dayan and Y. Mandelik)  
Bee communities in the Arava Rift Valley.
- 2009- Elizabeth Morgulis (A. Freidberg)  
The Ulidiidae (Diptera) of Israel

### **Post-doctoral fellows**

- 2008-2009 Efrat Gavish
- 2008-2009 Tiratha Raj Singh
- 2008-2009 Noa Shenkar
- 2009- Claudia Drees
- 2009- Merav Vonshak
- 2009- Hadass Steinitz

## Visiting scientists at the National Collections

The attached list includes visitors from institutions **other than** Tel Aviv University collection's staff 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 personally. 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.

Date	Name	Institute	Country	Taxonomic group
2008 Nov	Z. Brosh	Israeli Air Force	Israel	Birds
2008 Dec	M. Fischer	Tel Aviv University	Israel	Molluscs
2008 Dec	U. Bar-Ze'ev	IMS	Israel	Molluscs
2008 Dec	E.L. Heiman	IMS	Israel	Molluscs
2008 Dec	J. Ktalav	Israel Antiquity Authority	Israel	Molluscs
2008 Dec	K.B. Hilkanp	Michigan University	USA	Mammals
2008 Dec	H. Jablonka	Tel Aviv University	Israel	Mammals
2009 Jan	Z. Brosh	Israeli Air Force	Israel	Birds
2009 Jan	E.L. Heiman	IMS	Israel	Molluscs
2009 Jan	E. Sheffer	IOLR - Haifa	Israel	Molluscs
2009 Jan	M. Moris	IOLR - Haifa	Israel	Molluscs
2009 Feb	U. Bar-Ze'ev	IMS	Israel	Molluscs
2009 Feb	Z. Orlin	IMS	Israel	Molluscs
2009 Feb	S. Vaisman	Ministry of Agriculture	Israel	Molluscs
2009 Feb	M. Zordan	University of Chile	Chile	Mammals
2009 Feb	R. Shafir	University of Haifa	Israel	Mammals
2009 Mar	D. Furth	National History Museum, Smithsonian Institution, Washington	USA	Entomology

Date	Name	Institute	Country	Taxonomic group
2009 Mar	R. Shafir	University of Haifa	Israel	Mammals
2009 Mar	H. Cohen	Tel Aviv University	Israel	Mammals
2009 Mar	D. Chadash	University of Haifa	Israel	Birds
2009 Mar	S. Vaisman	Ministry of Agriculture	Israel	Molluscs
2009 Mar	E. Sohroden	University of Bonn	Germany	Molluscs
2009 Mar	U. Galili	Israel Antiquity Authority	Israel	Molluscs
2009 Mar	I. Ktalav	Israel Antiquity Authority	Israel	Molluscs
2009 Apr	R. Preiss		England	Entomology
2009 Apr	N. Preiss		England	Entomology
2009 Apr	R. Shafir	University of Haifa	Israel	Mammals
2009 Apr	Z. Brosh	Israeli Air Force	Israel	Birds
2009 Apr/ May	O. Gorbunov	Institute for Problems of Ecology and Evolution, Moscow	Russia	Entomology
2009 May	M. Seizmair	Munich Entomological Society, Munich	Germany	Entomology
2009 May	A. Dotan		Israel	Molluscs
2009 May	U. Galili	Israel Antiquity Authority	Israel	Molluscs
2009 May	Y. Sinai	Israel Nature and Parks Authority	Israel	Molluscs
2009 May	A. Roulin	University of Lausanne	Switzerland	Mammals
2009 May	Z. Brosh	Israeli Air Force	Israel	Birds
2009 May	P. Cerretti	Universita di Roma	Italy	Entomology
2009 May- July	S. Bleicher	Campus of the Enviromental Forestry, Mississippi	USA	Entomology
2009 Jun	L. Maul		Germany	Mammals
2009 Jun	S. Vaisman	Ministry of Agriculture	Israel	Molluscs
2009 Jun	Y. Sinai	Israel Nature and Parks Authority	Israel	Molluscs
2009 July	Z. Brosh	Israeli Air Force	Israel	Birds

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Date	Name	Institute	Country	Taxonomic group
2009 July	O. Hazofe	Israel Nature and Parks Authority	Israel	Birds
2009 July	S. Vaisman	Ministry of Agriculture	Israel	Molluscs
2009 Aug	S. Vaisman	Ministry of Agriculture	Israel	Molluscs
2009 Aug	Maja Seselj	University of New York	USA	Athropology
2009 Sep	D. Berkovich	Tel Aviv University	Israel	Birds

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## 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.

Purpose	Name	Institute	Taxonomic group
Faunistica of Mammals (academic course)	Y. Yom-Tov	Tel Aviv University	Mammals, Taxidermist and Museum Class
Insects the Flagship of Biodiversity (academic course)	A. Freidberg and D. Simon	Tel Aviv University	Entomology
Faunistica (academic course)	Z. Arad	Technion	Birds, Mammals and Museum Class
Faunistica (academic course)		Open University	Birds, Mammals and Museum Class
Vertebrates Anatomy (academic course)	D. Eilam, M. Ovadia and U. Oron	Tel Aviv University	Reptilia, Mammals and Taxidermist
Animal Behavior	I. Golani	Tel Aviv University	Mammals and Museum Class
Introduction to Animal Kingdom: Invertebrates and Vertebrates (academic course)	M. Ovadia and A. Gasith	Tel Aviv University	Mammals and Entomology
The Invertebrates: Comparative Functional Biology (academic course)	M. Ilan, Y. Benayahu and A. Abelson	Tel Aviv University	Invertebrates, Entomology and Histology

Purpose	Name	Institute	Taxonomic group
Osteology And Anthropology (academic course)	I. Hershkovitz	Tel Aviv University	Anthropology
Physical Anthropology (academic course)	Y. Rak	Tel Aviv University	Anthropology
Chapters in Human Evolution (academic course)	Y. Rak	Tel Aviv University	Anthropology
Human Evolution: fossil evidences (academic course)	Y. Rak	Tel Aviv University	Anthropology
Ichthyology (academic course)	M. Goren	Tel Aviv University	Fishes and Museum Class
Biology and Systematic of Marine Invertebrates: (academic course)	Y. Benayahu	Interuniversity Institute for Marine Sciences	Invertebrates
Guiding Students	D. Bar-Yosef	University of Haifa	Molluscs
Bird-Watching	T. Shariv	Avshalom Institute	Birds and Museum Class
Bird-Watching		Israeli Air Force	Birds and Museum Class
Bird-Watching		The Society for the Protection of Nature in Israel	Mammals, Birds and Museum Class
Various seminars	Nature Campus	Tel Aviv University	Mammals, Birds, Entomology and Museum Class
Guided tours to schoolchildren	Nature Campus	Tel Aviv University	Mammals, Birds, Entomology and Museum Class

## 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.

Purpose	Name	Institute	Taxonomic group
Taxonomic guidance (learning the procedure)	V. Sepliarsky	PPIS of the ministry of Agriculture	Entomology
Taxonomy Identification		Plant Protection and Inspection Services	Entomology
Taxonomy Identification		Israel Nature and Parks Authority	Entomology
Taxonomy Identification		Ministry of Environmental Protection	Entomology
Taxonomy Identification		Ministry of Helth	Entomology
Taxonomy Identification	A. Gasith	Tel Aviv University	Entomology and Invertebrates
Taxonomy Identification	E. Groner	Ben-Gurion University of the Negev	Entomology
Taxonomy Identification	M. Golan	Ben-Gurion University of the Negev	Entomology
Taxonomy Identification		Municipality of Haifa	Entomology
Taxonomy Identification		Municipality of Tel Aviv	Entomology
Taxonomy Identification		Mifaley Hhaemek, The Valley Agricultures Center	Entomology

Purpose	Name	Institute	Taxonomic group
Taxonomy Identification	O. Shelef	Ben-Gurion University of the Negev	Entomology
Taxonomy Identification	E. van dan Brink	Israel Antiquity Authority	Molluscs
Taxonomy Identification	U. Galili	Israel Antiquity Authority	Molluscs
Taxonomy Identification	S. Vaisman	Plant Protection and Inspection Services	Molluscs
Taxonomy Identification	E. Sheffer	IOLR - Haifa	Molluscs
Taxonomy Identification	Z. Orlin		Molluscs
Taxonomy Identification	G. Fleminger	Tel Aviv University	Invertebrates: Spiders
Taxonomy Identification	Campus Teva	Tel Aviv University	Invertebrates: Spiders
Taxonomy Identification	North Distric	Israel Nature and Parks Authority	Fishes
Taxonomy Identification	I. Zohar	Tel Aviv University	Fishes
Taxidermist services	A. Lotem	Tel Aviv University	Birds and Taxidermist
Taxidermist services	E. Geffen	Tel Aviv University	Mammals and Taxidermist
Taxidermist services	B. Waynes	University of California, Los Angeles	Mammals and Taxidermist
Taxidermist services	Nature Campus	Tel Aviv University	Mammals, Birds and Taxidermist
Taxidermist services		Israel Nature and Parks Authority	Birds and Taxidermist
DNA Shipment	E. Gefen	Tel Aviv University	Mammals
DNA Shipment	B. Waynes	University of California, Los Angeles, USA	Mammals
Electronic Data	A. Boskila	Ben-Gurion University of the Negev	Reptile

Purpose	Name	Institute	Taxonomic group
Electronic Data	B. Shacham	Hebrew University	Reptile
Electronic Data	E. Ratner	University of Haifa	Mammals
Electronic Data	D. Hadash	University of Haifa	Birds
Electronic Data	T. Harpaz	Faculty of Agriculture, Food and Environment	Entomology
Electronic Data	Y. Mendelik	Faculty of Agriculture, Food and Environment	Entomology
Electronic Data	Nature Campus	Tel Aviv University	All collections
Shipment of Specimens	Zachos F. E.	Christian Albrechts University, Keiel, Germany	Mammals
Shipment of Specimens	T. Pietsch	School of Aquatic and Fishery Sciences, University of Washington, USA	Fishes
Shipment of Specimens	B. Yokes	Halic Universitesi, Molekuler Biyoloji ve Genetik Bolumu, Istanbul , Turkey	Fishes
Shipment of Specimens	D. Golani	Hebrew University, Israel	Fishes
Shipment of Specimens	P. Berrebi	Universite Montpellier, France	Fishes
Shipment of Specimens	P. Berrebi	Universite Montpellier, France	Fishes
Shipment of Specimens	K. Dubula	The South African Institute for Aquatic Biodiversity, South Africa	Fishes
Shipment of Specimens	A. Andouche	Museum National d'Histoire Naturelle , Paris, France	Invertebrates: Soft Corals
Shipment of Specimens	B. Cauvin	GIP Réserve Nationale Marine de la Réunion, La Réunion	Invertebrates: Soft Corals

Purpose	Name	Institute	Taxonomic group
Shipment of Specimens	C. S. McFadden	Harvey Mudd College, Claremont, USA	Invertebrates: Soft Corals
Shipment of Specimens	F. Stefani	University of Milano-Bicocca, Milan, Italy	Invertebrates: Soft Corals
Shipment of Specimens	L. van Ofwegen	National Museum of Natural History , Leiden The Netherlands	Invertebrates: Soft Corals
Shipment of Specimens	M. Tessier	GIP Réserve Nationale Marine de la Réunion, La Réunion	Invertebrates: Soft Corals
Shipment of Specimens	Y. Benayahu	National Museum of Natural History , Leiden The Netherlands	Invertebrates: Soft Corals
Shipment of Specimens	B. Swalla	University of Washington, USA	Invertebrates: Tunicates
Shipment of Specimens	A. Driskell	Smithsonian Institution, USA	Invertebrates: Tunicates
Shipment of Specimens	X. Turon	Center for Advanced Studies of Blanes, Blanes, Spain	Invertebrates: Tunicates
Shipment of Specimens	A. Herrmann	Germany	Entomology
Shipment of Specimens	A. B. Biscaccianti	Italy	Entomology
Shipment of Specimens	A. H. Kirk-Spriggs	National Museum, Bloemfontein, South Africa	Entomology
Shipment of Specimens	E. Scheuchl	Germany	Entomology
Shipment of Specimens	A. Laforgue	Lavaur, France	Entomology
Shipment of Specimens	G. Evans	Systematic Entomology Laboratory, Beltsville, USA	Entomology
Shipment of Specimens	A. Matalin	Moscow State Pedagogical University, Russia	Entomology
Shipment of Specimens	H. Dathe	Entomologisches Institut, Germany	Entomology

Purpose	Name	Institute	Taxonomic group
Shipment of Specimens	A. Müller	Scientific Curator Entomological Collection, Switzerland	Entomology
Shipment of Specimens	H.-Y. Han	Department of Life Science, Yonsei University, Korea	Entomology
Shipment of Specimens	I. Grichanov	Institute of Plant Protection, Russia	Entomology
Shipment of Specimens	I. Winkler	North Carolina State University, USA	Entomology
Shipment of Specimens	A. Pauly	Institut royal des Sciences naturelles de Belgique, Belgique	Entomology
Shipment of Specimens	A. Schulz	Germany	Entomology
Shipment of Specimens	A. Velázquez de Castro	Spain	Entomology
Shipment of Specimens	A. Z. Lehrer	Israel	Entomology
Shipment of Specimens	B. Feldmann	Germany	Entomology
Shipment of Specimens	B. Merz	Muséum d'histoire naturelle, Switzerland	Entomology
Shipment of Specimens	B. Seifert	Staatliches Museum für Naturkunde Görlitz, Germany	Entomology
Shipment of Specimens	C. Muster	Germany	Entomology
Shipment of Specimens	M. Barták	Czech University of Agriculture, Czech Republic	Entomology
Shipment of Specimens	Ch. Xiaolin	National Museum of Natural History, Washington	Entomology
Shipment of Specimens	Ch. Xiaolin	Chinese Academy of Sciences, China	Entomology
Shipment of Specimens	M. Fibiger	Denmark	Entomology
Shipment of Specimens	D. Benyamini	Israel	Entomology

Purpose	Name	Institute	Taxonomic group
Shipment of Specimens	D. Gibbs	England	Entomology
Shipment of Specimens	M. Schwarz	Austria	Entomology
Shipment of Specimens	M. Terzo	U.M.H., Laboratoire de Zoologie, Belgique	Entomology
Shipment of Specimens	D. Michez	Laboratoire de Zoologie, Belgique	Entomology
Shipment of Specimens	D. R. Smith	National Museum of Natural History, Washington	Entomology
Shipment of Specimens	D. W. Wrase	Germany	Entomology
Shipment of Specimens	P.A. Pedata	Istituto per la Protezione delle Piante, Italy	Entomology
Shipment of Specimens	E. Palevsky	Israel	Entomology
Shipment of Specimens	S. Risch	Germany	Entomology
Shipment of Specimens	G. D. Lengyel	Hungarian Natural History Museum Budapest, Hungary	Entomology
Shipment of Specimens	R. Preiss	United Kingdom	Entomology
Shipment of Specimens	G. J. Kergoat	Centre de Biologie et de Gestion des Populations, France	Entomology
Shipment of Specimens	R. Szadziewski	University of Gdańsk,, Poland	Entomology
Shipment of Specimens	S. D. Gaimari	Plant Pest Diagnostics Lab, California Department of Food and Agriculture	Entomology
Shipment of Specimens	T. Pape	Zoologisk Museum, Denmark	Entomology
Shipment of Specimens	S. Patiny	Entomologie fonctionnelle et évolutive, Belgium	Entomology
Shipment of Specimens	H. Schnee	Germany	Entomology



Purpose	Name	Institute	Taxonomic group
Shipment of Specimens	T. Dikow	Division of Invertebrate Zoology, American Museum of Natural History, New York	Entomology
Shipment of Specimens	I. MacGowan	Scottish Natural Heritage, Scotland	Entomology
Shipment of Specimens	J. Papp	Hungarian Natural History Museum Budapest, Hungary	Entomology
Shipment of Specimens	J. Roháček	Silesian Museum, Czech Republic	Entomology
Shipment of Specimens	J. Ware	American Museum of Natural History, New York	Entomology
Shipment of Specimens	L. Davis	Florida	Entomology
Shipment of Specimens	L. Masner	Agriculture & Agrifood of Canada, Canada	Entomology
Shipment of Specimens	M. Carles-Tolra	Spain	Entomology
Shipment of Specimens	M. Cerny	Czech Republic	Entomology
Shipment of Specimens	M. Seizmair	Munich Entomological Society, Germany	Entomology
Shipment of Specimens	N. Dorchin	Museum Koenig Adenauerallee, Germany	Entomology
Shipment of Specimens	O. Gorbunov	Institute of Animal Morphology & Ecology, Russia	Entomology
Shipment of Specimens	P. Cerretti	Università degli Studi di Roma "La Sapienza", Italy	Entomology
Shipment of Specimens	N. P. Hidalgo	University of Leon, Spain	Entomology
Shipment of Specimens	N. L. Evenhuis	Bishop Museum, Hawaii	Entomology

Purpose	Name	Institute	Taxonomic group
Shipment of Specimens	R. Beck	Germany	Entomology
Shipment of Specimens	P. H. van Doesburg	National Natural History Museum, The Netherlands	Entomology
Shipment of Specimens	R. Wahis	Faculté universitaire des Sciences agronomiques, Belgique	Entomology
Shipment of Specimens	S. Klopstein	Natural History Museum, Switzerland	Entomology
Shipment of Specimens	S. Witnterton	Dept. of Primary Industries & Fisheries, Australia	Entomology
Shipment of Specimens	S. Ziani	Italy	Entomology
Shipment of Specimens	V. Tolkanitz	Institute of Zoology, Ukraine	Entomology

## Publications

The national collections of natural history are an important research infrastructure, used by scientists within and without the university. Over a decade ago we compiled the list of publications based on our natural history collections, and arrived at over 1,200 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 2008/2009 publications, alas, is also incomplete; it includes all publications of TAU members affiliated with the collections and under-represents publications of individuals from other institutions, since our follow up is far from complete.

## Refereed articles

1. Bamber, R.N., Bird, G., Błażewicz-Paszkowycz, M. and Galil, B.S. 2009. Tanaidaceans (Crustacea: Malacostraca:Peracarida) from soft-sediment habitats off Israel, Eastern Mediterranean. Zootaxa 2109:1-44.
2. Bar-David, S., Saltz, D., Dayan, T. and Shkedy, Y. 2008. Using spatially expanding populations as a tool for evaluating landscape planning: the Persian fallow deer as a case study. Journal for Nature Conservation 16:164-174.
3. Bar-Yosef Mayer D.E. 2008. Mediterranean, Red Sea and Nilotic Shell Artifacts in the Levant: Indicators of Trade Routes in the Bronze Age. In: Early Human Impact on Megamollusks, edited by Andrzej Antczak and Roberto Cipriani. British Archaeological Reports. Oxford: Archaeopress pp. 197-208.
4. Bar-Yosef Mayer, D.E. and Beyin, A. 2009. Late Stone Age Shell Middens on the Red Sea Coast of Eritrea. Journal of Island and Coastal Archaeology 4:108-124.
5. Bar-Yosef Mayer, D.E. and Gümüs, B.A. 2008. Shell archive report 2008 [http://www.catalhoyuk.com/archive\\_reports/](http://www.catalhoyuk.com/archive_reports/)
6. Bar-Yosef Mayer, D.E., 2008. *Dentalium* Shells Used by Hunter-Gatherers and Pastoralists in the Levant. Archaeofauna 17:103-110.
7. Bar-Yosef Mayer, D.E., Vandermeersch, B. and Bar-Yosef, O. 2009. Modern Behavior of Anatomically Modern Humans: Shells and ochre from Qafzeh Cave, Israel. Journal of Human Evolution 56:307–314.

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11. Bogi, C. and Galil, B.S. 2009. *Ensiculus cultellus* (Mollusca: Bivalvia: Pharidae) a new Erythrean alien in the Mediterranean. JMBA2-Biodiversity Records.
12. Buse, J., Levanony, T., Timm, A., Dayan, T. and Assmann, T. 2008. Saproxyllic beetle assemblages of three managed oak woodlands in the East-Mediterranean. Zoology in the Middle East 45:55-66.
13. Cerretti, P., De Biase, A. and Freidberg, A. 2008. Systematic study of the genus *Rossimylops* Mesnil (Diptera: Tachinidae). Zootaxa 1984:31-56.
14. Dar, G., Peleg, S., Masharawi, Y., Steinberg, N., May, H. and Hershkovitz, I. 2009. Demographic aspects of Schmorl nodes: a skeletal study. Spine 34(9):E312-5.
15. D'Errico, F., Vanhaeren, M., Barton, N., Bouzouggar, A., Mienis, H., Richter, D., Hublin, J.-J., McPherron, S.P. and Lozouet, P., 2009. Additional evidence on the use of personal ornaments in the Middle Paleolithic of North Africa. In R.G. Klein (Ed.): *Out of Africa: Modern Human Origins*. Special Feature. Proceedings of the National Academy of Sciences 106 (38): 16051-16056 + 1-10 (supporting information online)
16. Dohm, P., Kovac, D., Freidberg, A. and Hashim, R. 2008. Biology of the Oriental bamboo-inhabiting fly *Felderimyia gombakensis* (Diptera: Tephritidae: Phytalmiinae: Acanthonevrini) and observations on mating trophallaxis in *Felderimyia*. Senckenbergia Biologica 88(2): 311-318.
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21. Friedman, A. L. L. 2008. Taxonomic problems in the weevil genus *Brachycerus* (Curculionoidea: Brachyceridae) in Israel. Israel Journal of Entomology 38:148.
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28. Gavish-Regev, E., Rotkopf, R., Lubin, Y. and Coll, M. 2009 (2008 *online first*). Consumption of aphids by spiders and the effect of additional prey: evidence from microcosm experiments. BioControl 54: 341-350.
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30. Gerling, D., Erel, E., Guershon, M. and Inbar, M. 2009. Bionomics of *Encarsia scapeata* Rivnay (Hymenoptera: Aphelinidae), tritrophic relationships and host-induced diapause. Biological Control 49(3):201-206.
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- (Cyprinidae) as a test case. Aqua, International Journal of Ichthyology 15(1):1-12.
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  35. Goren, M., Yokes, M.B., Galil B.S. and Diamant A. 2009. Indo-Pacific cardinal fish in the Mediterranean Sea – new records of *Apogon smthii* from Turkey and A. *Queketti* from Israel. Marine Biodiversity Research 2:1-4.
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  37. Heiman, E.L. 2009. *Pustularia cicercula avrilae* a new subspecies from French Polynesia. Triton 19:26-31.
  38. Heiman, E.L. and Mienis, H.K. 2009. *Casmaria ponderosa unicolor* in the Gulf of Aqaba. Triton, 19: 23-25.
  39. Heiman, E.L. and Mienis, H.K. 2009. *Homalocantha anatomica elatensis* new subspecies from East Sinai. Triton, 19: 15-22.
  40. Heiman, E.L. and Mienis, H.K., 2009. *Casmaria erinacea erinacea* in the Gulf of Aqaba. Triton 20:1.
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1. Bar-Yosef Mayer, D.E. Chapter 12: The Stone Beads of the Gilgal Sites. In Gilgal: Early Neolithic Occupations in the Lower Jordan Valley, The Excavations of Tamar Noy. Edited by Bar-Yosef, O., Goring-Morris, A.N. and Gopher, A. Brill, Boston.
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- 2008 Mortality factors affecting populations of *Bemisia tabaci* on cassava in Uganda. Journal of Insect Science 8: 6-6 (Asiimwe P, Ecaat JS, Otim M, Gerling D, Guershon M, Kyamanywa S and Legg JP)
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- 2008 Sheet-web spiders (Linyphiidae) research in Israel. The 27<sup>th</sup> annual meeting of the Entomological Society of Israel (Gavish-Regev, E.).
- 2008 Spider assemblage in arid agroecosystem: patchy landscape, functional groups and spatial movement patterns. The Negev meeting for Agricultural Research and Development (Gavish-Regev, E.).
- 2008 The Coral Reefs of Eilat-past present and future. First International Congress Documenting, Analyzing and Managing Biodiversity in the Middle East. Aqaba, Jordan (Y. Loya).
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- 2008 Bidirectional sex change in fungiid corals. The 11th International Coral Reef Symposium, June 7-11, Miami, Fort Lauderdale, USA (Y. Loya).

- 2008 1st International Congress Documenting, Analysing and Managing Biodiversity in the Middle East, Aqaba, Jordan (T. Dayan).
- 2008 Drylands, Deserts and Desertification Conference, Sede Boqer Campus, Ben Gurion University, Israel (chaired a desert ecology session) (T. Dayan).
- 2008 Patterns of biodiversity in natural Mediterranean landscapes and pine plantations in Israel. German-Israeli Agro-Forestry Mini Symposium, Weizmann Institute, Rehovot (invited lecture) (T. Dayan).
- 2008 Reconstruction of sponge phylogenetic relationships using a new molecular marker. 45<sup>th</sup> meeting of the Zoological Society of Israel. Michmoret, (Israel). December 28. (Feldstein, T., Goldfarb, I., Belinky, F., Ilan, M. and Huchon, D.)
- 2008 Sede Boqer Workshop on hierarchical complexity approach to desertification (co-chair of a session and invited lecture) (T. Dayan).
- 2008 The ecological consequences of ant invasion: The impact of *Wasmannia auropunctata* on ant species diversity in its invasive range. Proceedings of the 4th European Meeting of the IUSI (International Union for the Study of Social Insects), La Roche en Ardenne, Belgium. (Vonshak, M., Dayan, T. and Hefetz, A.).
- 2008 The influence of aquaculture on the phylogeography of *Tilapia zillii*. 45<sup>th</sup> meeting of the Zoological Society of Israel. Michmoret, (Israel). December 28. (Shitenberg, A., Goren, M. and Huchon, D.).
- 2008 The Middle Palaeolithic Shell Beads of Qafzeh Cave, Israel. Annual meeting of the Israel Prehistoric Society. (Bar-Yosef Mayer, D.E.).
- 2008 *Wasmannia auropunctata*'s impact on local ant species in its invasive range. Proceedings of the 23<sup>rd</sup> International Congress of Entomology, Durban, South Africa. (Vonshak, M., Dayan, T. and Hefetz, A.).
- 2008 Non-indigenous ascidians along the Mediterranean coast of Israel The Zoological Society of Israel, Annual Conference, Michmoret, Israel (Shenkar, N.).
- 2009 A tale of two seas: ecological aspects of the ascidian community along the coast of Israel. Sixth international conference on marine bioinvasions, USA (Shenkar, N.).
- 2009 Repeated sex change in mushroom corals. International Okinawa Churaumi Aquarium Symposium on "Reproduction of marine organisms", Okinawa, Japan (Y. Loya).

- 2009 Tel Aviv Science, Technology, and Defense Workshop, 43<sup>rd</sup> meeting (invited lecture) (T. Dayan).
- 2009 74<sup>th</sup> meeting of the Israel Chemical Society (Tel Aviv, Israel) (M. Ilan).
- 2009 Biodiversity Hotspots – Evolution and Conservation, National Museum of Natural History, Luxembourg (invited keynote lecture) (T. Dayan).
- 2009 Biological invasions of fishes in eastern Mediterranean. The 2<sup>nd</sup> Workshop IBICC-BIOMED “The impacts of biological invasions and climate change on biodiversity of Mediterranean Sea” Lecce, Italy, 3-5 April 2009. (Goren M., Galil, B.S. and Diamant A.).
- 2009 Competitive displacement mechanisms by the little fire ant, in the Tenth Symposium in Memory of Merav Ziv – “Animal Behavior and Conservation Biology”. Abstract booklet, Blaustein Institute for Desert Research, Ben Gurion University. (Vonshak, M., Dayan, T. and Hefetz, A.)
- 2009 Coral reefs of the Indo-Pacific in an era of global change (Eilat, Israel) (M. Ilan).
- 2009 North West Developmental Society annual meeting, USA (Shenkar, N.).
- 2009 Quaternary beach deposits, coastal morphology, tectonics and sea-level changes, on the coast of Northern Cyprus, and their possible implications on Neolithic colonization. In A. Sagy, S. Bookman, Y. Hamiel, A. Mushkin, Y. Nahmias, B. Medvedev and A. Heimann (Eds.): Israel Geological Society 2009 Abstracts 51. (Galili, E., Sevketoglu, M., Salamon, A., Zviely, D., Mienis, H.K., Rosen, B., Moshkovitz, S.)
- 2009 Shell Bead Technology from the Palaeolithic through the Iron Age in the Levant. Bead technology workshop, British Museum, London. (Bar-Yosef Mayer, D.E.).
- 2009 The aquatic resources of the Natufian culture. Annual meeting of the Israeli Association for Aquatic Sciences. Mikhmoret. (Bar-Yosef Mayer, D.E.).
- 2009 The new Mediterranean - the impact of biological invasions and climate change on the biodiversity of the Mediterranean Sea. 13<sup>th</sup> European Congress of Ichthyology. 6–12 September. Klaipeda, Lithuania, (Goren M., Yokes M.B., Galil, B.S. and Diamant A.).
- 2009 The phylogeny and ontogeny of disc herniation: Schmorl's nodes as a case study. 17th Congress of the International Federation of association of Anatomists, Cape Town, SA (Dar G, Peleg S, Masharawi Y, Steinberg S, May H, Hershkovitz I.).

- 2009 The scientific background for preservation of endangered fishes – the Yarqon bleak (*Acanthobrama telavivensis*) as a test case. International Workshop on the Restoration of Fish Populations 1-4 September. Düsseldorf Germany. (Goren M.).
- 2009 The anatomy of the hip joint: it's association with femoral head-neck lesions. 17th Congress of the International Federation of association of Anatomists, Cape Town, SA (Medlej B, Masharawi M, Dar G, Stein D, Steinberg N, Abbas J, May H, Cohen H, Hershkovitz I.).
- 2009 The clinical significance of Hyperostosis Frontalis Interna. 17th Congress of the International Federation of association of Anatomists, Cape Town, SA (May H, Dar G, Abbas J, Hay J, Medlej B, Hershkovitz I.).
- 2009 Sacral orientation and spondylolysis in light of Darwinian medicine. 17th Congress of the International Federation of association of Anatomists, Cape Town, SA (Peleg S, Dar G, Steinberg N, Masharawi Y, Abbas J, Peled N, Hershkovitz I.).
- 2009 Spinal involvement in Schmorl's nodes. Sixth Faculty Research Fair, Faculty of Social Welfare & Health Studies, Haifa University (Dar G, Peleg S, Masharawi Y, Steinberg N, May H, Hershkovitz I.).
- 2009 Sexual dimorphism in the thoracic and lumbar vertebrae as a morphological adaptation to lumbar hyperlordosis during pregnancy. Eight annual meeting of the Israeli Physiotherapist Society (IPTS), Israel (Masharawi Y, Dar G, Peleg S, Bechar A, Steingberg N, Medlej B, Abbas J, May H, Hershkovitz I.).
- 2009 Paleoanthropology and Darwinian Medicine, Internationaler Kongress der Gesellschaft für Anthropologie (GfA), Munich, Germany (I. Hershkovitz).
- 2009 The falsely of paleopathology, Seoul International Conference on Ancient DNA and Paleopathology, Seoul, Korea (I. Hershkovitz).

## **Public programs - Nature Campus**

Nature Campus continued in its activities to advance 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 programs:**

- **Guided Tours.** The program offers a two hour activity at the I. Meier Segals Garden for Zoological Research or the Botanic Gardens. During 2008/2009, the Gardens played host to **4,800** 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 three to 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. The number of participants in these programs was 2,000 children.
- **Science Camps.** Science camps were being held during the Hannukah, Passover and summer school vacations. The camp, a 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. This

year we were not allowed to market the program to TAU staff by TAU e-mail network, our main audience and avenue of marketing. Therefore, only 116 children participated

- Professional Development and Training Days. Diverse training programs offer conservation biology enrichment for teachers and environmental organizations staff. The professional training program is tailored according to the participants' requirements. This year 480 professionals, including teachers, participated in our in-service training programs.

### **On-Line resources**

Since the Collections capacity for public visitation is much limited, we put special effort in developing our outreach through the Internet:

- Nature Campus website – <http://www.campusteva.tau.ac.il> – which outreaches to the public, and offers, in a language understandable to all, the wealth of scientific research based on the Natural History Collections (Learning resources section). During 2009 the website was redesigned and a new updated version was launched.
- EarthWeb: our changing world. An online primer. During 2009 we have redesigned and launched a new version of the website – [www.earthweb.tau.ac.il](http://www.earthweb.tau.ac.il). The website – an online primer, offers information in Hebrew about the Earth systems, ecosystem services and highlight from status reports worldwide. The website was developed with the kind support of the Ministry of Environmental Protection and the Charles and Lynn Schusterman Family Foundation. Additional to being an open website it will also serve in the coming year as a foundation for youth competitions on sustainable development (developed with the Ministries of Education and of Environmental Protection).

- The Natural History Collections website - <http://www.mnh.tau.ac.il> was established and launched. The website provides an active, continuously updated, and comprehensive access to the research activities based on the collections. It also offers an on-line exhibition - <http://www.mnh.tau.ac.il/?cmd=collections.73> of the last evidence of many extinct species which are recorded at TAU collections.
- Zoo On-Line is a joint project with TAU I. Meier Segals Garden for Zoological Research. 6-8 cameras are continuously broadcasting from the Zoo. The pictures are accompanied with information, updated by Nature Campus webmaster, on the Zoo inhabitants. The project was supported by Israel Electric Company and Moked Amon Security Company.



## Collections budget

### הוצאות שכר

סך העלות	מספר משרות	
<b>3,443,186</b>	15.30	<b>סה"כ אוצרים</b>
1,369,598	2.50	אוצרים (1)
882,782	2	אוצרים - עמיתי מחקר
0	6	אוצרים בגמלאות
835,121	4	מדענים עולים
355,685	0.8	אוצרים נלווים (2)
0		אחר
<b>2,843,399</b>	14.21	<b>סגל טכני (4)</b>
<b>6,286,585</b>	29.51	<b>סה"כ הוצאות שכר</b>

### מלגות

282,038	מלגות פוסט דוק
<b>282,038</b>	<b>סה"כ מלגות</b>

### הוצאות שאינן שכר

50,000	הוצאות אחסון
50,000	הוצאות שימור
50,000	הוצאות תיעוד וקטלוג
175,000	הוצאות לשיפור מצב האוספים (3)
<b>325,000</b>	<b>סה"כ הוצאות שאינן שכר</b>

<b>6,893,623</b>	<b>סה"כ הוצאות לפני הוצאות מנהל ומשק</b>
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<b>1,378,725</b>	<b>הוצאות מנהל ומשק (20%)</b>
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<b>8,272,348</b>	<b>סה"כ הוצאות</b>
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## מקורות מימון

<b>2,027,979</b>	<b>השתתפות ות"ת:</b>
507,979	השתתפות ות"ת - קמ"ע
750,000	השתתפות ות"ת
770,000	תוספת השתתפות ות"ת לתמיכה בשדרוג האוספים
<b>5,174,836</b>	<b>השתתפות מוסד:</b>
1,281,887	השתתפות המוסד בהוצאות שכר האוצרים
1,907,186	השתתפות המוסד בהוצאות שכר הסגל הטכני
607,038	השתתפות המוסד בהוצאות שאינן שכר
1,378,725	השתתפות המוסד - הוצאות כלליות
<b>1,069,533</b>	<b>הכנסות מגופים ציבוריים:</b>
936,213	מענקי מחקר
133,320	משרד הקליטה
<b>8,272,348</b>	<b>סה"כ הכנסות</b>
<b>0</b>	<b>עודף (גרעון)</b>

- (1) שכר האוצרים מהווה 50% ממשרתם של אנשי הסגל הבכיר הפעילים במוסד ושהנם בעלי אחריות ישירה על אוספים ספציפיים.
- (2) שכר האוצרים הנילווים מהווה 20% ממשרתם של הפעילים במוסד.
- (3) הוצאות לשיפור מצב האוספים כוללות השלמת אוספים וטיפול במערך האיחסון.
- (4) לא כולל הוצאות והכנסות בגין קמפוס טבע
- לא נלקחה בחישוב הוצאה בסך כ-\$M6 הנדרשת למחשוב אוסף אנטומולוגי והעלאת קואורדינטות על נתוני אוספים.

**תקציב מתוכנן של מרכז הידע התשתיתי לתקופה 1.12.2008 - 30.11.2009**

דו"ח כספי מפורט ישלח על ידי האוניברסיטה אחרי ה 30.11.2009.

290,000	הוצאות משכורת
10,000	רכישת ציוד מדעי
15,000	רכישת חומרים
35,500	תשלומים שונים
200,000	הקצאת מלגות
82,575	הוצאות מינהל ומשק-תקורה
633,075	סה"כ

## **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

Harold A. Mooney, Department of Biological Sciences, Stanford University, Stanford, CA, USA

Lord May of Oxford OM AC Kt FRS, 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

## **Scientific and Public Supervision**

**Steering Committee under the auspices of the Israel Academy of Sciences and Humanities** which represents the collections on the Budget and Planning Committee of the Council of Higher Education: Yehudith Birk (Chairperson), Rafi Meshulam, Yossi Loya, Oded Navon, Yael Lubin, Ehud Spanier, Reuven Merhav, Yossi Segal, Tamar Dayan.

**Steering Committee of the collections as an information resource of the Ministry of Science:** Yehudith Birk (Chairperson), Shai Avriel, Husam Massalha, Bella Galil, Menahem Goren, Tamar Dayan.

**TAU Executive Council Steering Committee for the building construction:** Alfred Akirov and Ran Croll (EC members) and Mordehai Kohn (TAU D-G).

**Sponsors' Steering Committee:** Yeshayahu Bar-Or (Chief Scientist, Ministry of Environmental Protection) – Chair, Meirav Peleg (Ministry of Tourism), Yuval Eshdat (Chief Scientist, Ministry of Agriculture), Yael Siman-Tov (in charge of construction budgeting, Budget and Planning Committee), Raanan Rein (former TAU Vice Rector), Ofer Lugassi (Deputy D-G of Engineering and Maintenance), Tamar Dayan.

**Steering Committee for the Israel Taxonomy Initiative**, consortium of 19 organizations (Ministry of Environmental Protection, Ministry of Agriculture, Ministry of Health, Ministry of Science, universities, Academic Colleges, research institutes, Israel Nature and Parks Authority, Keren Kayemet LeYisrael, Society for the Protection of Nature) under the direction of Tamar Dayan and Menahem Goren: Michael Ottolenghi, Yossi Loya, Yael Lubin, Bella Galil, Alan Matthius. Observer: Ran Levy (Yad Hanadiv).

## **Scientific-Public Council**

The national collections of natural history and all collections-based activities are recognized as a project of national significance. Therefore we felt that we would do well to have a Scientific and Public Council to represent the public interest, whether in science, education, culture or tourism. We have asked a group of leaders in their respective fields to serve as members of this council; Many members have already supported us over the years, helping out in their different areas of expertise.

Ruth Arnon

Itamar Borowitz

Yehudith Birk

Gedalya Gal

Dan David

Yael Dayan

Ariel Weiss

Yossi Vardi (observer)

Ilan Chet

Yaakov Turkel

Ami Federman

Aaron Ciechanover

Shoni Rivnai

Shimshon Shoshani

Michael Steinhardt

Brian Sherman

Meir Shalev

## Museum staff

Tamar Dayan	Department of Zoology	Director
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### Curators (TAU faculty members)

Yoram Yom-Tov (emeritus)	Department of Zoology	Higher Vertebrates
Yehuda Benayahu	Department of Zoology	Invertebrates
Amnon Freidberg	Department of Zoology	Entomology
Menachem Goren	Department of Zoology	Fishes
Lev Fishelson (emeritus)	Department of Zoology	Fishes
Dorothee Huchon	Department of Zoology	Molecular Systematics
Baruch Arensburg (emeritus)	Department of Anatomy & Anthropology	Physical Anthropology
Yoel Rak	Department of Anatomy & Anthropology	Physical Anthropology
Israel Hershkovitz	Department of Anatomy & Anthropology	Physical Anthropology
Nissan Binyamini (retired)	Department of Plant Sciences	Fungi
Margalith Galun (emeritus)	Department of Plant Sciences	Lichens
Jacob Garty (emeritus)	Department of Plant Sciences	Lichens
Ya'akov Lipkin (retired)	Department of Plant Sciences	Algae

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

Silvia Blumenfeld	Department of Plant Sciences	Fungi
Vladimir Chikatunov (retired)	Department of Zoology	Coleoptera
Vasiliy Kravchenko	Department of Zoology	Lepidoptera
Sergei Zonstein	Department of Zoology	Arachnidae
Andy Lehrer (retired)	Department of Zoology	Diptera
Yuri Katz (retired)	Department of Zoology	Paleontology
Olga Orlov-Labkovsky	Department of Zoology	Micropaleontology

**Associate curators** (faculty members)

Yossi Loya	Department of Zoology	Stony Corals
Micha Ilan	Department of Zoology	Sponges
Dan Gerling (emeritus)	Department of Zoology	Hymenoptera
Abraham Hefetz	Department of Zoology	Entomology
Bella S. Galil	Israel Oceanographic & Limnological Research - Haifa	Crustaceans
Danny Simon	Department of Zoology	Formicidae
Ilan Yarom	Hazeva Research & Development	Diptera
Eli Geffen	Department of Zoology	Molecular Systematics
Ofer Mokady (retired)	Department of Zoology	Molecular Systematics
Elazar Kochva (emeritus)	Department of Zoology	Herpetology



### **VATAT supported expert collections managers**

Armin Ionescu-Hirsch, PhD	Department of Zoology	Hymenoptera
Daniella E. Bar-Yosef Mayer, PhD	Department of Zoology Institute of Archaeology	Paleontology
Moshe Guershon, PhD	Department of Zoology	Apoidea
Wolf Kuslitzky, PhD	Department of Zoology	Hymenoptera

### **VATAT supported Post-docs**

Claudia Drees  
Efrat Gavish-Regev  
Noa Shenkar  
Merav Vonshak

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

Revital Ben-David-Zaslow, PhD	Department of Zoology
Avigail Ben-Dov	Department of Zoology
Tova Feller	Department of Zoology
Leonid Friedman	Department of Zoology
Igor Gavrilov	Department of Zoology
Armin Ionescu-Hirsch, PhD	Department of Zoology
Reuven Landsman	Department of Zoology
Henk Mienis	Department of Zoology
Tzilla Shariv	Department of Zoology
Alex Shlagman	Department of Zoology
Tirza Stern	Department of Zoology
Erez Maza	Department of Zoology

### **‘Nature Campus’**

Yael Gavrieli, PhD	Director
Anat Feldman	Content Development
Erez Maza	Public Programs Coordinator

### **Part time employees**

Oz Ritner	Department of Zoology
Gil Wizen	Department of Zoology
Bat Sheva Rothman	Department of Zoology
Gai Harlev	Department of Zoology
Tali Kuperman	Department of Anatomy & Anthropology
Michal Gol	Department of Anatomy & Anthropology
Anat Gershuni	Department of Anatomy & Anthropology
Matan Ben-Zion	Department of Anatomy & Anthropology
Vivian Sloan	Department of Anatomy & Anthropology

### **The Israel Taxonomy Initiative coordinator**

Michael Rozenfeld, PhD	Department of Zoology
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