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Obituary

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In memoriam Jamshid Darvish

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On November 15, 2017, the community of mammalogists lost one of its prominent figures. Professor Jamshid Darvish, formerly transliterated as Djamchide Darviche (Figure 1), who was already suffering from thyroid cancer for several years, suddenly passed away in the hospital after severe epistaxis followed by heart failure. We present here some testimonies about his personality, his major achievements, as well as his entire bibliography to highlight the important contributions he made to the field of zoology, paleontology and systematics for his country and abroad.

Jamshid Darvish was born on February 10, 1952, in Birjand (Iran). After graduating from high school, he went to Tabriz in northwest Iran where he studied Natural Science at Tabriz University. On receiving a national scholarship, he moved to France during 1974–1978 where, at the University of Montpellier II, he obtained certificates in Ecology and Geology, and obtained a Diplôme d'Etudes Approfondies followed by a PhD in Biosystematics and Evolution, under the guidance of Dr Jacques Michaux. At that time, Institut des Sciences de l'Evolution-Montpellier (ISE-M) was started by Professor Louis Thaler and Jamshid Darvish was one of the first students of this research laboratory to benefit from the beginnings of the evolutionary biology discipline in France that included a multidisciplinary approach. His thesis entitled “Approche morphologique et morphométrique de la biosystématique à la lumière de la génétique des populations. Application aux genres *Mus* et *Apodemus*” allowed him to become familiar with rodents and different tools in integrative taxonomy from molecules to morphology, both at the species and subspecies levels. Moreover, he was in contact with the ISE-M paleontologists and became interested in this discipline. One of the main results of his PhD was the first description of the very faint morphological characters that distinguish two otherwise poorly known sympatric mouse species (Darviche et al. 1979, Darviche and Orsini 1982). His academic career started with the position of Assistant Professor, 1978–1984, in the Biology Department of Tabriz University, where he was the head of the department during the last 4 years. Jamshid then returned to his hometown (Birjand) and was appointed as the president of

the University of Birjand for nearly 4 years. In 1987, he continued his career as an Assistant Professor in the Biology Department of the Ferdowsi University of Mashhad, where he was promoted to the position of Associate Professor in 1994 and a Full Professor in 1999. In his personal page (<http://www.um.ac.ir/~darvish/>), Jamshid Darvish has included three key words concerning his main topics of research: Rodents, Biosystematics, Evolution. In these areas, we can find a prolific scientific production, not only from his own work, but also from his Masters and PhD students. His bibliography lists more than 150 articles published in the fields of systematics, evolution, paleontology and archeozoology of rodents and other small mammals (see the References section). Among the most cited articles he published, one can find at least three articles about the evolution of the genus *Mus* and also a synthesis about the diversity of rodents in Iran. His invaluable contribution to the knowledge of the diversity of his country is also reflected through the description of a new species of three-toed jerboa (*Jaculus thaleri* Darvish and Hosseinie 2006) named after Louis Thaler from the ISE-M. Jamshid also contributed to the update of the faunal lists of Iran by adding new records of poorly known species like *Golunda ellioti* Gray, 1837 (Darvish et al. 2012a), the pygmy field mouse *Apodemus uralensis* (Pallas, 1811) (Darvish et al. 2010a), the Zarundny's jird (*Meriones zarudnyi* Heptner, 1937) (Darvish et al. 2010b), the Hotson's five-toed jerboa *Allactaga hotsoni* Thomas, 1920 (Darvish et al. 2006a) and the Euphrates jerboa *Allactaga euphratica* Thomas, 1881 (Darvish et al. 2012b). He made different taxonomic revisions using morphology and morphometrics as well as phylogenetic analyses like, for instance, revisions of the whole genus *Meriones* (Darvish 2009, 2011) or of the Iranian *Apodemus* (Darvish et al. 2015). Each of his students has co-authored between three and four papers with him, and various molecular phylogenetic and phylogeographic analyses of Iranian rodents have been published under his supervision. Among the latter, one can quote the study of *Microtus* phylogeny by Mahmoudi et al. (2017b,c,d), study of *Apodemus* (Shad et al. 2016), the analysis of *Allactaga* evolution as well as phylogeography of *Meriones persicus* (Dianat et al. 2010, 2013, 2016a,b), the phylogeny of *Calomyscus* by Shahabi et al. (2011, 2013a,b).



Figure 1: Jamshid Darvish at the Research Center for Emerging and Reemerging Infectious Diseases (Pasteur Institute Iran), Akanlu, Hamadan, Iran (May 2016).

Jamshid Darvish's interest in morphometric tools was never-ending and led to publications on skull geometric morphometrics in different rodents of Iran, particularly in *Mus* (Shabani et al. 2014, Siah sarvie et al. 2012), *Apodemus* (Siah sarvie and Darvish 2008), *Microtus* (Siah sarvie et al. 2013), *Allactaga* (Tarahomi et al. 2010) and *Calomyscus* (Zarei et al. 2013). He also published articles along with herpetologists and ornithologists as well as with entomologists. More recently he was developing collaborations on rodent zoonoses like leptospirosis (Esfandiari et al. 2016), plague and tularemia (Mostafavi et al. 2017) as well as in epidemiology (Esfandiari et al. 2015, 2017).

Jamshid Darvish was the first to formally introduce Biosystematics and Evolution as an educational discipline in the universities of Iran. His determination for achieving high standards of international systematic research led him to become the founder of the Laboratory of Animals Center in Tabriz University, the founder and the director of Birjand station of the International Desert Research Center, the founder and director of Biosystematics Laboratory, Rodentology Research Department, and Institute of Applied Zoology, Rodent Study Group at the Ferdowsi University of Mashhad. Finally, he took the initiative of establishing the Natural History Museum of Khorassan which is still under construction at the Ferdowsi University of Mashhad. Besides this, Jamshid was the founder, director and the editor-in-chief of the "Iranian Journal of Animal Biosystematics" (published quarterly in English) and also the chief editor of the "Journal of Animal Research" (published quarterly in Persian). Jamshid gave lectures on Evolution, Taxonomy, Vertebrate Zoology, Mammalogy, as well as on Species and Speciation, Phylogenetic Systematics, Biosystematics, Field and Laboratory Methods in Biosystematics and

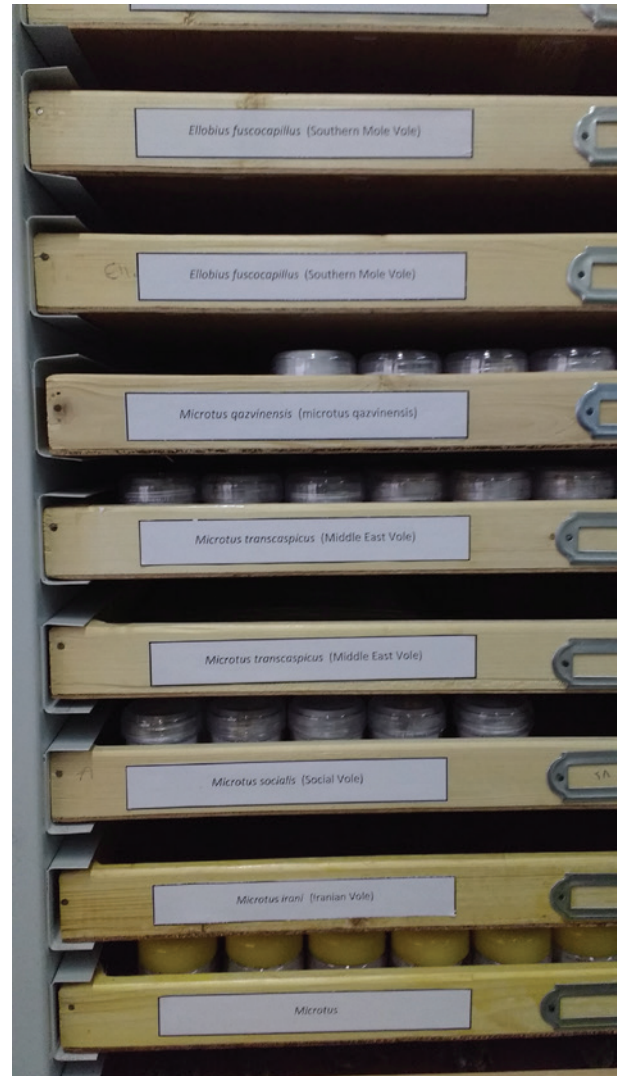


Figure 2: Darvish rodent collection at the Ferdowsi University of Mashhad. Cabinets with skulls of Iranian species of jirds (*Meriones*).

Animal Contemporary Classification to undergraduate and postgraduate students.

During his entire scientific career, Jamshid Darvish had been involved in extensive fieldwork and collected an impressive amount of specimens which are now available to students and public in the Zoology collection at the Ferdowsi University of Mashhad, recently renamed as "Darvish Rodent Collection" in his honor (Figures 2 and 3).

Because Jamshid realized that young scientists in Iran need to get access to the literature of Evolutionary Biology, he translated several books from French or English to Persian among which one should mention the book by Charles Devillers (1973) (*Introduction à l'étude systématique des vertébrés*. Doin, Paris France), Ernst Mayr (1970) founding book (*Populations, Species and Evolution*.



Figure 3: Darvish rodent collection at the Ferdowsi University of Mashhad.

A drawer containing skins of Iranian mouse-like hamsters (*Calomyscus*).

Harvard University Press), Ernst Mayr and Peter D. Ashlock (1991) (*Principles of Systematic Zoology*. McGraw-Hill College), Xavier Misonne (1959) (*Zoogéographie des mammifères de l'Iran*. Royal Belgian Institute of Natural Sciences) and the recent one by Cleveland P. Hickman, Jr. et al. (2013) (*Integrated principles of Zoology*). He has also authored several books, among which “Methodologies in Animal Biosystematics” (Ferdowsi University Press, in Persian) was honored as the Best Scientific Book of Iran in 2014. Jamshid Darvish has supervised numerous Masters and PhD students and enjoyed the reputation of being an outstanding mentor. He was honored with the title of National Distinguished Professor in 2008.

Along with his numerous academic duties, Prof. Darvish was always inclined toward the general organization and management of the University and contributed to the development of Biological Science at various universities. He was the head of the Biology Department at the Tabriz University from 1980 to 1984 and then the President of Birjand University from 1984 to 1987. He was also one of the founders of the Birjand Branch of Azad University in 1981. In Mashhad he also accepted responsibilities as the Vice-Dean for Educational Affairs at the Faculty of Science from 1990 to 1994; Chairman of the Biology Department, Ferdowsi University of Mashhad 1995–1997; Vice-Dean for Research Affairs at the Faculty of Science from 1997 to 2002 and Manager of Research Affairs at the Ferdowsi University of Mashhad from 2002 to 2004.

We all knew him personally for different reasons. First in Montpellier he was well integrated into the student's band of Prof. Louis Thaler. He was a friendly and very good fellow but was always assuming a status of oriental person lost in an occidental world. He always kept his relationship with Montpellier and especially with the group of François Bonhomme, Janice Britton-Davidian

and Pierre Boursot intact and stayed there during his sabbatical year in 2004. He also knew Dr. Francis Petter and the Zoology Mammal and Bird department collections of the Museum national d'Histoire naturelle (MNHN, Paris) very well. He especially revised the gerbilline and dipodid rodents of this collection for which he came for taxonomic revisions and stayed for 3 months in 2001 and during numerous visits to France. He also contributed to the field of archeozoology by aiding in the identification of several fossil specimens found in prehistoric Iranian and Central Asian archeological sites. As another example of Prof. Darvish's fidelity toward his French and other international collaborators, he sent joint PhD students to be trained at the Montpellier University, the MNHN of Paris, Natural History Museum of Slovenia, Russian Academy of Science, Ghent University and the University of Gothenburg.

These collaborations were also effective in the organization of different meetings and international conferences. For instance he organized, among others in 2001, the first conference entitled Applications of Biosystematics Studies on Rodents of Iran in the Ferdowsi University of Mashhad, Iran.

The last conference entitled “International conference on Integrative Approaches of Rodent studies” was held from 27th January to 1st February 2018 and gathered delegates from 15 countries. He was the one who initiated its organization and laid the basis for its effective realization. His life, however, did not last long enough to be with us during the days of the conference.

Jamshid Darvish was deeply convinced about the importance of biosystematics as a promising field as well as of evolutionary studies for which he was a precursor and developer in Iran. He was always keen of developing culture and education in his country and organized the first seminar in 1988 entitled “Analysing the obstacles and effective factors in cultural, educational development of Sistan-Baluchistan and Southern Khorasan regions” at the University of Birjand. We will always remember him as a very respectful, motivated, charismatic and affable person and we will deeply miss him.

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