

Seventh International Congress of Vertebrate Morphology

Boca Raton, Florida, 27 July to 1 August, 2004

The International Congress of Vertebrate Morphology is a premier multinational gathering. Known for its breadth and depth of coverage, the Congress brings together the best and brightest morphologists of today, and encourages students of morphology to contribute now and to grow with the field for years to come. The Congress encourages its more than 400 participants to listen, discuss, learn, and take home new ideas to the classroom, field, and lab. This collegial atmosphere creates opportunities to enrich ideas and build collaborations.

Morphology is a field with a rich and long history, and it remains one of the most dynamic and integrative areas of biology and paleontology today because of its intellectual depth and diversity. Morphology teaches us how animals form (development and evolution), what forms succeed (biodiversity and paleontology), how they succeed (biomechanics and its fitness implication), how vertebrates interact with the environment (physiology and behavior), and what forms have been possible (paleontology). Morphology provided the earliest, and some might argue the strongest, foundation for evolutionary biology. Vertebrate morphology is the science that not only gives us an understanding of our own form, but also of the rich diversity that has fascinated so many people from children to scientists for centuries.

The 7th International Congress of Vertebrate Morphology (ICVM-7) explores exciting and dynamic areas of vertebrate morphology through six plenary lectures, 19 symposia, four workshops, and more than 300 contributed presentations and posters. Morphologists work across scales and integrate their data, ideas, and theoretical frameworks in novel ways. The ICVM-7 plenary lectures demonstrate this with topics that range from molecules in morphology to development of form, through biomechanics to evolutionary dynamics, and into understanding of fossil faunas through merging traditional and emerging technologies. The 19 oral and poster symposia and four workshops are equally robust in their coverage and diversity. Symposia encourage participants to gain enhanced understanding from concentrated and focused lectures or posters, whereas workshops create novel and specialized opportunities for learning.

The 7th International Congress of Vertebrate Morphology is hosted by Florida Atlantic University in Boca Raton, Florida, USA. Florida Atlantic Uni-

versity (FAU) was founded in 1964 on a 344-hectare site located near the Atlantic Ocean. The main campus, which serves as the venue for most of the ICVM-7 activities, is located half-way between Palm Beach and Fort Lauderdale. FAU is a distributed university with campuses to the south in Davie and Fort Lauderdale and to the north at Jupiter, Port St. Lucie, and at its partner institution, Harbor Branch Oceanographic Institution in Fort Pierce. FAU offers a broad range of academic programs, activities, and services. In addition to the many research projects and other creative endeavors being conducted by individual faculty, more than 40 centers and institutes dedicated to specific disciplines and areas of investigation are in operation. Some examples in the fields of science and technology are the Center for Environmental Studies, the Center for Complex Systems and Brain Sciences, the Center for Excellence in Biomedical and Marine Biotechnology, the Center for Marine Materials, and the Center for Molecular Biology and Biotechnology. FAU is a member of the United States Geological Service environmental consortium. A number of faculty and graduate student projects are ongoing in cooperation with various establishments in the FAU Research Park.

The ICVM-7 is hosted at Florida Atlantic University by the Division of Research and Graduate Studies, College of Science, Department of Biological Sciences, and the FAU student organization ECOS.

ACKNOWLEDGMENTS

The ICVM-7 thanks the National Science Foundation, Florida Atlantic University's Division of Research and Graduate Studies, and the College of Science for substantial financial support of the Congress. We gratefully acknowledge our sponsors Ruden McClosky and Ward's Natural Science. We thank Jeffrey Laitman, editor for functional and evolutionary morphology at the *Anatomical Record* for support of the workshop, *Finite Element Analysis of Vertebrate Skulls*. We are grateful to Rick Harrison, editor of the *Journal of Morphology*, and Nancy

DOI: 10.1002/jmor.10224
Published online in
Wiley InterScience (www.interscience.wiley.com)

Olsen with the staff of John Wiley & Sons for their continuing support of the International Congress of Vertebrate Morphology. In addition to their enthusiasm and guidance, it is through their generosity that the publication of these abstracts is possible.

ICVM-7 COMMITTEES

Congress Convener

Jeanette Wyneken
Department of Biological Sciences
Florida Atlantic University
Boca Raton, Florida, USA

Scientific Program Committee

Elizabeth Brainerd (Chair, USA)
Andrzej Elzanowski (Poland)
Ann Huysseune (Belgium)
Jukka Jernvall (Finland)
Shigeru Kuratani (Japan)
Anthony Russell (Canada)
Kurt Schwenk (USA)
James Hanken, ISVM President (ex-officio, USA)
James O'Reilly, Program Officer (USA)
J. Matthias Starck, ISVM Secretary (ex-officio, Germany)
Jeanette Wyneken, ICVM-7 Congress Convener (ex-officio, USA)

Abstract Editors

J. Matthias Starck (Chair)
Rick Harrison (Editor, *Journal of Morphology*)
Vincent Bels (Belgium)
Mike Bennett (Australia)
Ann Huysseune (Belgium)
Brad Moon (USA)
James O'Reilly (USA)
Anthony Russell (Canada)
Jean-Yves Sire (France)

International Society of Vertebrate Morphologists — Officers

James Hanken, President (USA)
Anthony Russell, President-elect (Canada)
Matthias Starck, Secretary (Germany)
Jean-Yves Sire, Treasurer (France)
Jeanette Wyneken, ICVM-7 Congress Convener (USA)

Members of ISVM Executive Committee

Peter Aerts (Belgium)
R. McNeill Alexander (UK)
Vincent Bels (Belgium)
Mike Bennett (Australia)

Elizabeth Brainerd (USA)
Martin Fischer (Germany)
Frietson Galis (Netherlands)
James Hanken (USA)
John Long (USA)
Hidetoshi Ota (Japan)
Zybněk Roček (Czech Republic)
Anthony Russell (Canada)
Jean-Yves Sire (France)
J. Matthias Starck (Germany)
Gerhard Storch (Germany)
Johan van Leeuwen (Netherlands)
Jeanette Wyneken (USA)

ICVM-7 Plenary Lectures

Peter Aerts, University of Antwerp, Belgium
The Promise of Basic Mechanics in Functional and Ecological Vertebrate Morphology
Frietson Galis, Leiden University, The Netherlands
The Conservation of Body Plans Through Internal Selection
Susan Herring, University of Washington, Seattle, WA, USA
Mechanical Loading and the Mammalian Skull
David Kingsley, Stanford University, Palo Alto, CA, USA
How Is Morphology Encoded in the Genome?
Olivier Rieppel, Field Museum of Natural History, Chicago, IL, USA
Breaking Organisms Into Parts: Similarity, Stereotype, and Homology
Lawrence Witmer, Ohio University, Athens, OH, USA
Fleshing Out the Past: The Present as the Key to a Very Different Past

ICVM-7 Symposia

Adhesion in Vertebrates — Mechanisms and Biomimetic Implications
(Organized by W.J.P. Barnes)
Evolution of Developmental and Reproductive Patterns in Mammals
(Organized by K.K. Smith and U. Zeller)
Evolutionary Origin of Neural Crest and Placodes
(Organized by G. Schlosser and C.V.H. Baker)
Inferring Function and Behavior in Extinct Vertebrates
(Organized by D.M. Henderson and E. Snively)
Integrated Mechanical Investigations of Fish Swimming
(Organized by R.G. Root and J.H. Long)
Integrating Approaches to the Study of Terrestrial Locomotion
(Organized by S.M. Reilly and N. Stevens)
Linking Genes and Morphology
(Organized by F. Galis and J. Jernvall)

Making Headway — Craniofacial Development in Model and Non-Model Vertebrates
(Organized by L.P. Hernández)

Mechanistic Approaches to Evolutionary Developmental Biology
(Organized by M.L. Zelditch)

Molecular and Morphogenetic Evolution of Specific Organs
(Organized by B. Fritzsich and S. Kuratani)

Morphology and Paleobiology of Mesozoic Birds
(Organized by A. Elzanowski and A. Chinsamy-Turan)

Phylogenetic Approaches in Comparative Vertebrate Morphology
(Organized by T. Garland)

Respiration and Locomotion: Coupled Systems in Vertebrate Evolution
(Organized by S.F. Perry and D.R. Carrier)

Stem Groups and the Assembly of Vertebrate Body Plans
(Organized by P.C.J. Donoghue and M.A. Purnell)

The Ontogeny of Performance in Vertebrates
(Organized by A. Herrell and A.C. Gibb)

ICVM-7 Poster Symposia

Mechanisms and Tradeoffs in Vertebrate Burrowing
(Organized by B. Moon and J.C. O'Reilly)

Morphology and Life Habits of Past and Present Giant Vertebrates
(Organized by R.A. Fariña and S.F. Vizcaíno)

Morphological Transformations During the Transition to Dry Land
(Organized by Z. Roček and J.A. Clack)

Venom Delivery in Snakes
(Organized by B.A. Young and K.V. Kardong)

ICVM-7 Workshops

Finite-Element Analysis of Vertebrate Skulls
(Organized by C. Ross and Sponsored by the Anatomical Record)

Fish Teeth Wet Lab
(Organized by H. Evans)

Application of Advanced Imaging Technologies to Vertebrate Morphology
(Organized by T. Cranford)

Teaching Comparative Anatomy
(Organized by A.P. Russell and H.I. Rosenberg)