



## The 22nd International Congress of Zoology successfully held in Okinawa, Japan

The 22<sup>nd</sup> International Congress of Zoology (ICZ) was held in Okinawa, Japan, from 14-19 November 2016. Over 1,100 participants from 31 countries and regions around the world attended. The theme of the Congress was “New Waves of Zoological Science in the 21st Century.”

The Congress was organized by the International Society of Zoological Sciences (ISZS) and hosted by the Zoological Society of Japan (ZSJ). The supporters and sponsors included Okinawa Institute of Science and Technology (OIST), Science Council of Japan and Japan World Exposition 1970 Commemorative Fund (JEC Fund).

The ICZ first began in 1889 under the impetus of the Société Zoologique de France and currently it is the premier event of the ISZS since 2004. The opening ceremony of the 22nd ICZ was held on 14 November at the Auditorium of OIST. Prince Akishino of Japan was present at the ceremony, which was chaired by Noriyuki Satoh, the chairman and local organizer for the 22nd ICZ and a professor of Marine Genomics Unit, OIST. A Welcome Message from the Prime Minister of Japan, Shinzo Abe, was also read by Noriyuki Satoh at the ceremony.

Hiroyuki Takeda, President of the 22nd ICZ and President of IUBS (International Union of Biological Sciences), and Zhibin Zhang, President, ISZS delivered opening remarks. Takashi Onishi, President of Science Council of Japan and Robert Bauftam, Executive Vice President, OIST greeted the audience. Prince Akishino of Japan delivered a presentation on his study on zoology and Peter W Holland from University of Oxford presented an opening lecture at the ceremony, which was closed by Yoshitaka Nagahama, Vice President, ISZS and Professor from Ehime University, Japan.



*From left to right: Noriyuki Satoh, Yoshitaka Nagahama, Takashi Onishi, Zhibin Zhang, Hiroyuki Takeda, Prince Akishino, Robert Bauftam*



*Some delegates and attendees at the 22nd ICZ opening ceremony*

The Congress was divided into 1 opening lecture, 3 plenary lecture sessions, 26 symposia, 2 Asian Young Zoologists Symposia, and 3 Satellite Workshops. There were also opportunities to display posters by the delegates and attendees at the Congress. There were nearly 800 posters displayed during the Congress.



*Some posters displayed during the Congress*

The opening lecture was “From Darwin or DNA: a tale of genome, embryos and animal evolution” given by Peter W H Holland from Department of Zoology, Oxford University, UK and there were 15 lectures in the 3 plenary lecture sessions. They are “Ecological nonmonotocity and its impacts on stability and persistence of ecological networks” by Zhibin Zhang, Institute of Zoology, Chinese Academy of Sciences, China; “Major steps in animal evolution” by Clause Nielsen, University of Copenhagen, Denmark; “Embryology of the hagfish and early evolution of vertebrates” by Shigeru Kuratani, Evolutionary Morphology Laboratory, RIKEN, Japan; “A new insight into evolution of the brain from the *nou-darake* gene” by Kiyokazu Agata, Department of Life Science, Gakushuin University, Japan; “The photoreceptors that regulate biological time in the vertebrates” by Russell G. Foster, University of Oxford, UK; “Origin of animal multicellularity: precursors, causes, consequences—the choanoflagellate/sponge transition, neurogenesis, and Cambrian explosion” by Thomas Cavalier-Smith, Department of Zoology, University of Oxford, UK; “Molecular signaling events controlling the initiation limb regeneration” by Elly Tanaka, Research Institute of Molecular Pathology, Austria; “The sex of fish: determination, differentiation, and plasticity” by Yoshitaka Nagahama, National Institute for Basic Biology/Ehime University, Japan; “Aging and reproduction in social insects” by Jürgen Heinze, University of Regensburg, Germany; “Ecosystem dynamics, fishery and climate change: bringing Darvian evolution and Eltonian population dynamics and genomic together into unified biology” by Nils Christian Stenseth, Center for Ecological and Evolutionary Synthesis, Department of Biosciences, University of Oslo, Norway; “Learning to live with the parasitic mite, *Varroa destructor*” by Alison Mercer, Department of Zoology, University of Otago, New Zealand; “The origin of new genes and evolutionary innovations” by Diethard Tautz, Max

Planck Institute for Evolution Biology, Germany; “Global change and coping with extreme climate events” by John C. Wingfield, University of California Davis, USA; “Getting ahead with hemichordates” by Billie J. Swalla, University of Washington, USA; and “Chordates origins and evolution” by Noriyuki Satoh, Marine Genomics Unit, Okinawa Institute of Science and Technology, Japan.



*The plenary speakers (from top, left to right)*

*Line 1: Peter W H Holland, Zhibin Zhang, Clause Nielsen, Shigeru Kuratani,  
Line 2: Kiyokazu Agata, Russell G. Foster, Thomas Cavalier-Smith, Elly Tanaka  
Line 3: Yoshitaka Nagahama, Jürgen Heinze, Nils Christian Stenseth, Alison Mercer  
Line 4: Diethard Tautz, John C. Wingfield, Billie J. Swalla, Noriyuki Satoh*

The 26 symposia were Regeneration in zoology; Enigmatic clocks: non-circadian biological rhythms; Primordial features of the centralized nervous system; AQUAGAMETE: Reproduction of aquatic animals developmental biology; Deciphering of neuronal evolution in modern era: Integrative and functional genomics of brains and neural circuits; Sensory systems and circadian rhythms; Mechanical regulation of morphogenetic processes in diversified animals; Cilia: their coordination in motility, morphogenesis and eukaryotic evolution; Insect adaptations: Current trends; Reproductive strategy ~asexual vs. sexual~; Regulation of reproduction and reproductive behavior by GnIH and kisspeptin; Of flies and bees: comparative neuroethology from sensory perception to social behavior in two model species; Morphological evolution of vertebrates; Sex determination and differentiation -Mechanism ensuring sexually biphasic status-; Evolution of animal ornamentation; Biological consequences of global change (BCGC); Evolution of cyclostomes and chondrichthyans: Molecular approaches; What do we know about animals living in the sand interstices?; Learning from sensory molecules: Impact on physiology and evolution; Evolvability and constraint in animal evolution; Physiological responses to global (or climate) change: patterns and process; Diverse adaptation strategies of animals: recent progress in homeostasis biology; Delving into overlooked zoology; Molecular mechanism of diapause in Arthropods;



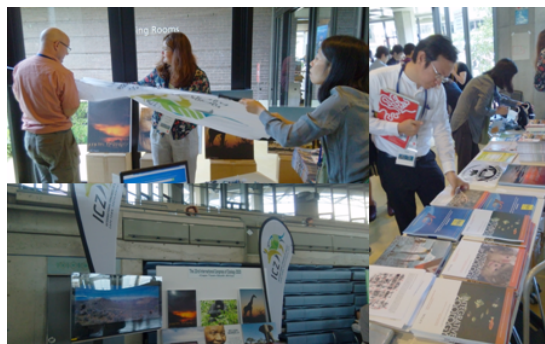
Non-conventional animal models surfing the new waves of cutting-edge technologies; and Plant-animal interaction. The 2 Asian Young Zoologists symposia were Animal diversity and evolutionary development biology; and Physiology and endocrinology. The 3 satellite workshops were Animal ornamentation – Extra talks and general discussion; Morphological evolution of vertebrates - new concepts from molecular insights; and Reproductive strategy & sex determination: Joint workshop.

Of the 26 symposia, ISZS Secretariat Office organized three. They were Biological consequences of global change (BCGC) with Nils Christian Stenseth and Zhibin Zhang as organisers; Physiological responses to global (or climate) change: patterns and process with William H. Karasov and Dehua Wang as organizers; and Plant-animal interaction with Stephen Vander Wall and Hongmao Zhang as organizers. There were 25 zoologists delivered their research presentations at the symposia.



*Organisers of ISZS-organised symposia*  
*Top (from left to right): Nils Christian Stenseth, Zhibin Zhang, William H. Karasov*  
*Right (from left to right): Dehua Wang, Stephen Vander Wall, Hongmao Zhang*

In order to promote the 23rd ICZ, ISZS and INZ, a special exhibit booth during the ICZ venues in Japan (Okinawa Institute of Science and Technology and Okinawa Convention Center) was organized and Sarita Maree, Chairman of the Local Organizing Committee presented an introduction report on the 23rd ICZ in Cape Town, South Africa, 2020 with a promotional video on the conference venue and South Africa at the end of Plenary Lectures on 16 November 2016.



*Top left: Jacob Wickham (left), Sarita Maree (middle) and Wei Zhang (right) setting the booth*  
*Bottom left: the ICZ booth at Okinawa Convention Center (OCC)*  
*Right: ISZS and INZ booth at Okinawa Institute of Science and Technology (OIST)*

On 15 November during the Congress, ISZS had its General Assembly (GA) in Meeting Room 1, OIST, which was chaired by Zhibin Zhang, President, ISZS. Hiroyuki Takeda, President of IUBS and President, the Joint meeting of the 22nd International Congress of Zoology (ICZ) and the 87th meeting of the ZSJ delivered a brief remark at the beginning of the GA, speaking highly on ISZS and its contribution to both the IUBS and the Joint meeting in Okinawa, as ISZS is a successful organizer of the IUBS International Scientific Program, Biological Consequences of Global Change (BCGC) and organized three symposia with a focus on biodiversity and ecology, making the joint meeting a huge success.



*Top: Zhibin Zhang (left) and Hiroyuki Takeda (right) at GA  
Bottom: Some delegates at GA*

A printed ISZS 2008-2016 Progress Report was prepared by the ISZS Secretariat Office and it was distributed at the GA. Based on the Report, Chunxu Han, Secretary General, ISZS presented a good summary of the ISZS work in the last 4 years and the GA approved both the Report and presentation. Wenhua Xiong, Executive Editor, *Integrative Zoology* (INZ) presented a report on INZ, giving a good summary of the INZ progresses from 2012 to 2016 and it was also approved by the GA. Other items on the GA Agenda included ISZS Statutes Amendment, Election and Update on plans for the 23rd ICZ in Cape Town, South Africa in 2020. The GA approved all of them.

On 18 November, the ISZS Executive Committee had a meeting concerning Society' business at Room Bc, Okinawa Convention Center. Issues discussed included: comments on ISZS and INZ Reports, discussion on ISZS and INZ working directions, discussion on the preparation of the 23rd ICZ in Cape Town, South Africa in 2020 and appointment of a nomination committee.



*Left to right: Wenhua Xiong, Sarita Maree, Yoshitaka Nagahama, Jürgen Heinze, Zhibin Zhang, Chunxu Han, Jacob Wickham at the EC meeting*