



# First International Conference on the Restoration of Endangered and Extinct Animals Jastrzebiec near Warsaw, Poland 17-19 May 2010

## "Another Way to Maintain Biodiversity"

### Patronage

Minister of Science and Higher Education  
Minister of the Environment  
President of the Polish Academy of Sciences  
Rector of Poznan University of Life Sciences  
Rector of Warsaw University of Life Sciences

### Organizing committee

Ryszard Słomski  
- President - Poznan  
Zdzisław Czapla - Turek  
Edward Dymnicki  
- Vice president - Jastrzebiec  
Alexander Dzieduszycki - Warsaw  
Daniel Lipiński - Poznan  
Jacek A. Modliński - Jastrzebiec  
Marlena Szalata - Poznan  
Ewa Winiarczyk-Ryba - Warsaw

### Scientific committee

Mirosław S. Ryba  
- President - Warsaw  
Keith Campbell - Nottingham  
Hieronim Frąckowiak - Poznan  
Thomas Gilbert - Copenhagen  
Claude Guintard - Nantes  
Michael Hofreiter - York  
Andrzej Kędziora - Poznan  
Jędrzej Krupiński - Balice  
Andrzej Kruszewicz - Warsaw  
Pasqualino Loi - Terramo  
Wanda Olech-Piasecka - Warsaw  
Zdzisław Smorąg - Balice  
Jan Śmiełowski - Poznan  
Alexei Tikhonov - St. Petersburg  
Cis van Vuure - Wageningen

### Organizing institutions

Institute of Genetics and Animal Breeding of the Polish Academy of Sciences  
The Polish Foundation for Restoration of the Aurochs  
Department of Biochemistry and Biotechnology of Poznan University of Life Sciences

### Restoration of Endangered and Extinct Animals Edited by Ryszard Słomski

Poznań University of Life Sciences, 2010  
ISBN 978-83-7160-584-0

### Contents

Ryszard Słomski Restoration of endangered and extinct animals	7
Keith H.S. Campbell Animal cloning for preservation and resurrection of endangered species	27
Alexander M. Dzieduszycki, Mirosław S. Ryba Endangered species protection in Poland of the old times	38
Wanda Olech The genetic variability within <i>Bison bonasus</i> species 90 years after bottleneck	48
Tadeusz Jezierski History of Konik Polski Horse	58
Eric H. Harley, Craig Lardner, Michael Gregor, Bernard Wooding, Michael H. Knight The restoration of the quagga - 24 years of selective breeding	78
Pasqualino Loi, Grażyna Ptak Somatic cells nuclear transfer in wild animals - a realistic view and some ideas	88
Andrzej Kędziora, Jerzy Karg Biodiversity of agricultural landscape	95
Volodymyr Ladyka, Iuliia Kulyk, Oleksandr Sverdlikov Improvement of Ukrainian Braunvieh Cattle using Brown Swiss	113
Zdzisław Smorąg, Barbara Gajda Application of reproduction biotechnology in maintaining of animal biodiversity	122
Cis van Vuure The aurochs ( <i>Bos primigenius</i> ) - its morphology and ecology	134
Hieronim Frąckowiak, Ewa Kudlińska, Ryszard Słomski Phylogenetic tree of <i>Bovinae</i> including the aurochs	145
Claude Guintard Preliminary results on gastrointestinal parasitism in five herds of Heck cattle in France — reflections on extensivity and rusticity, what about the first step of the domestication and the extinction of <i>Bos primigenius</i> ?	161
Ryszard Słomski, Alexander M. Dzieduszycki, Daniel Lipiński, Marlena Szalata, Joanna Zeyland, Karolina Wielgus, Hieronim Frąckowiak, Zdzisław Smorąg, Jacek A. Modliński, Mirosław S. Ryba Analysis of genomic and mitochondrial DNA of aurochs	176
Jan Śmiełowski Management of populations of threatened animal species — can breeding activities save endangered species from extinction?	196
Ongoing projects	202
Ruiqiang Li, Wei Fan, Geng Tian, et al. The sequence and de novo assembly of the giant panda genome	202
Peixiang Ni, Ruiqiang Li, Rili Ge, Zhi Jiang From the genome of giant panda to three extreme-environment animals	203
Andrzej G. Kruszewicz Zoological gardens — role in species protection	204
Andrzej Krzywiński The development of new method of reintroduction "born to be free" and its use for protection of endangered species on the example of grouses and lynx	205
Andrei Berezovsky, Alexey Fotin, Tatiana Fotina, Julia Dvorska New tool to increase reproduction in cows	206
Wioletta Sawicka-Zugaj, Zygmunt Litwińczuk Whitebacked — Polish native cattle breed	207
Krzysztof Andres, Andrzej Rabsztyn, Piotr Antos, Ewa Kapkowska Restoration of Polish native crested chickens — preliminary attempts	208
Małgorzata Gumułka Preliminary studies on semen quality of Zatorska ganders from preserved genetic resources of Poland	209
Beata Prusak, Tomasz Grzybowski, Bartłomiej Najbar, Sławomir Mitrus, Adam Hryniewicz, Grzegorz Górecki, Grzegorz Grzybowski Polish population of <i>Emys orbicularis</i> — genetic variability and implications for the species protection	210