

ANIMAL PRODUCTION SCIENCE

CONTENTS Volume 60, Issue 10, 2020, 1227–1367

9th INTERNATIONAL DEER BIOLOGY CONGRESS, ESTES PARK, COLORADO, USA, 2018

Foreword i

Reviews

Integrating fertility preservation and cryo-banking into the conservation of rare and endangered deer species

P. Comizzoli 1227–1232

Deer antlers: traditional Chinese medicine use and recent pharmaceuticals

Chunyi Li 1233–1237

Impacts of nutrition on reproduction in female red deer: phenotypic flexibility within a photoperiod-mediated seasonal cycle

G. W. Asher 1238–1247

Animal responses to environmental variation: physiological mechanisms in ecological models of performance in deer (Cervidae)

Nicholas J. C. Tyler, Pablo Gregorini, Katherine L. Parker and David G. Hazlerigg 1248–1270

Research papers

The next frontier for recovering endangered huemul (*Hippocamelus bisulcus*): how to avoid recurrent misdiagnoses of health status and risks

Werner T. Flueck and Jo Anne M. Smith-Flueck 1271–1282

Acoustic parameters of courtship and human-directed friendly vocalisations in seven species of Neotropical deer in captivity

Patricia Black-Decima, Alejandra M. Hurtado, J. M. Barbanti Duarte and Mirta Santana 1283–1291

Influence of fire severity and vegetation treatments on mule deer (*Odocoileus hemionus*) winter habitat use on the Kaibab Plateau, Arizona

Kirby D. Bristow, Larisa E. Harding, Richard W. Lucas and Thomas C. McCall 1292–1302

High fibre selection by roe deer (*Capreolus capreolus*): evidence of ruminal microbiome adaption to seasonal and geographical differences in nutrient composition

Sarah-Alica Dahl, Martina Hudler, Wilhelm Windisch, Carmen Bolduan, Daniel Brugger and Andreas König 1303–1314

Response of roe deer (*Capreolus capreolus*) to seasonal and local changes in dietary energy content and quality

Andreas König, Martina Hudler, Sarah-Alica Dahl, Carmen Bolduan, Daniel Brugger and Wilhelm Windisch 1315–1325

4th INTERNATIONAL SYMPOSIUM ON ANTLER SCIENCE AND PRODUCT TECHNOLOGY, CHANGCHUN CITY, JILIN PROVINCE, CHINA, 2018

Research papers

Effects of macrophage-conditioned medium on sika deer (*Cervus nippon*) antler stem cells

Zhen Wang, Datao Wang, Tao Qin, Hengxing Ba, Guanning Wei, Yong Li, Wei Yu and Chunyi Li 1326–1333

Effects of an antler velvet-based natural compound on osteoporosis in a rodent model

Haiping Zhao, Xuehua Wang, Zhen Wang, Fangzhou Du, Haitao Li and Chunyi Li 1334–1342

Establishment and comparative analysis of HPLC fingerprints of deer tissues

Mengjie Yao, Haiping Zhao, Xiaoyan Qi, Yuan Xu, Wenyuan Liu and Chunyi Li 1343–1350

Deer blood effectively improved clinical signs of anaemia in a rodent model

Xiaoyan Qi, Haiping Zhao, Yudong Shang, Yuan Xu, Mengjie Yao, Changfeng Wang, Pengfei Hu and Chunyi Li 1351–1356

Sika deer (*Cervus nippon*) velvet antler ameliorates 2,4-dinitrochlorobenzene-induced atopic dermatitis-like clinical signs in a rodent model

Young-Jin Choi, Meiqi Fan, Yonghai Yu, Xiaoli Wang, Yujiao Tang and Eun-Kyung Kim 1357–1363

Reclassification of velvet antler portions following transcriptomic analysis

Tao Qin, Guanning Wei, Haiping Zhao, Yong Li, Hengxing Ba and Chunyi Li 1364–1367