



# ABSTRACT BOOK



FACULDADE DE  
CIÊNCIAS E TECNOLOGIA  
UNIVERSIDADE NOVA DE LISBOA



## **ORGANIZING INSTITUTION**

Departamento de Ciências da Terra, FCT - Faculdade de Ciências e Tecnologia, UNL-  
Universidade Nova de Lisboa

## **HOST COMMITTEE**

Marco Marzola, Octávio Mateus, Miguel Moreno-Azanza, Eduardo Puértolas-Pascual,  
Femke Holwerda, Bruno Pereira, José Carlos Kullberg, João Russo, Francisco Costa

## **SCIENTIFIC COMMITTEE**

Octávio Mateus, Marco Marzola, Miguel Moreno-Azanza, Eduardo Puértolas-Pascual,  
Emanuel Tschopp, Matteo Belvedere, Jesper Milàn, Jeff Liston, Glória Cuenca, Juan  
Manuel Lopez Garcia, Hugues-Alexandre Blain, Bruno Pereira, Soledad De Esteban-  
Trivigno, Gertrud Rössner, José Carlos Kullberg, Paulo Legoinha, Nuno Bicho, Ausenda  
Balbino, Miguel Telles Antunes

## **STUDENT COMMITTEE**

Francisco Costa, Hugo Campos, Alexandra Fernandes, Alexandre Guillaume, Dario  
Estraviz López, João Muchagata Duarte, Filippo Rotatori, Sara Kjeldsø Sneltorp, André Saleiro

## **ABOUT THE LOGO**

The XVI EAVP Annual Meeting logo is a composite of the skull and part of the anterior neck of the stegosaur *Miragaia longicollum*, superimposed on the outline of the mouth of the Tagus River, the vibrant city of Lisbon, and the Setúbal Peninsula. In this area, several vertebrate fossils have been found from the Late Jurassic, Cretaceous, and Miocene, including bones and footprints.

*Miragaia longicollum* is a species of stegosaur erected in 2009 after the partial anterior skeleton was excavated from Upper Jurassic Lourinhã Formation rocks near the village of Miragaia. The specimen is now on display in the Museum of Lourinhã. Another more complete specimen of *Miragaia* recently studied, which was found in the Upper Jurassic of Peniche, confirms the validity of *M. longicollum* as distinct from all other species of stegosaurs. This second specimen of *Miragaia* is, to date, not only the most complete dinosaur found in Portugal, but also the most complete stegosaur ever found in Europe. Stored at LNEG (Laboratório Nacional de Energia e Geologia), this new specimen of *Miragaia* has been the main focus of a Master's thesis in Paleontology from FCT-UNL.

The illustration of the XVI EAVP Annual Meeting logo is part of a full body reconstruction of *Miragaia longicollum*, based on the holotype and the above-mentioned new specimen, and is credited to Oliver Demuth (<https://odemuth.wordpress.com>).

Marzola, Mateus and Moreno-Azanza, 2018

DCT, DEPARTAMENTO DE CIÊNCIAS DA TERRA,  
FACULDADE CIÊNCIAS E TECNOLOGÍA. UNIVERSIDADE NOVA DE LISBOA

To cite an abstract in this book:

Anquetin, J. and Billet, G. 2018. Peer Community in Paleontology (PCI Paleo): a community-driven, transparent, free and open platform for peer-review in paleontology. In: Marzola, M, Mateus, O. and Moreno-Azanza, M. *Abstract book of the XVI Annual Meeting of the European Association of Vertebrate Palaeontology*, Caparica, Portugal June 26th-July 1st, 2018. 15.

Welcome to EAVP 2018, this year in Caparica, Portugal, hosted by the Faculdade de Ciências e Tecnologia of Universidade Nova de Lisboa.

The Annual Meeting of the European Association of Vertebrate Palaeontology is one of the most important and renowned conferences of its kind. Every year, hundreds of researchers from all over Europe and other continents meet at the Annual EAVP Meeting, with a significant and increasing presence of young researchers in the initial stages of their career.

The Annual EAVP Meeting offers a unique opportunity to all its participants to share knowledge on their latest works and to have it disseminated in a nice, welcoming, and colloquial environment.

In 2018, we are hosting the Annual EAVP Meeting at the FCT Campus in Caparica, in Portugal, surrounded by marvelous fossiliferous sandy beaches and paramount vertebrate fossils from close localities.

This XVI Annual Meeting of the European Association of Vertebrate Palaeontologists is receiving about 190 participants from 23 countries. All abstracts in this volume passed a peer review process, assuring the quality standard required in science.

As in many other countries, the impact and role of science and scientists is increasing in Portugal. Paleontology is no exception, with the addition of new museums, visited fossils sites, geoparks and activities every year. In addition, the Master of Paleontology program hosted by FCT-UNL and Universidade de Évora and other programs of study around the country are contributing to interest in paleontology in Portugal, with a new generation of skilled researchers and multidisciplinary approaches.

The XVI EAVP Meeting is also remarkable for hosting completely free workshops to participants. This year, we offered a workshop on “Photogrammetry basics for paleontologists” (host by Matteo Belvedere and Heinrich Mallison) and one on “First Steps Into Geometric Morphometrics” (host by Soledad De Esteban-Trivigno). Plus, our meeting this year proudly hosts two socially important roundtables: the first “LGBTQIA visibility in science and museum exhibits” (host by João Muchagata, Simão Mateus and Vincent Cheng, Francesc Gascó) and the second edition of the “Women in Palaeontology: addressing gender inequalities and stereotyping in Palaeontology and science in general” (host by Femke Holwerda).

Marco Marzola, Octávio Mateus  
and Miguel Moreno-Azanza

Host committee



Dear Delegates

On behalf of the Board of the European Association of Vertebrate Palaeontologists, it gives us great pleasure to welcome you all to this meeting. We have been planning to hold our annual meeting in Portugal for more than five years, so it is most satisfying to finally see you all here. Portugal has a proud heritage of vertebrate palaeontology, and it is a privilege for this to be the venue for our 16th assembly. We look forward to three days of provocative presentations and stimulating networking in this beautiful setting.

Welcome All!

Eberhard 'Dino' Frey, EAVP President

Jeff Listn, EAVP Vice President





## CONTENTS

FOREWORD	v
WELCOME TO THE EAVP	VII
PEER COMMUNITY IN PALEONTOLOGY (PCI PALEO): A COMMUNITY-DRIVEN, TRANSPARENT, FREE AND OPEN PLATFORM FOR PEER-REVIEW IN PALEONTOLOGY J. Anquetin and G. Billet	15
ORNAMENTATION OF ARTHRODIRAN DERMAL PLATES FROM THE LOWER DEVONIAN OF MOROCCO M. Antczak, M. Ruciński and B. Berkowski	16
POST-GLACIAL RECOLONIZATION OF EUROPE BY MICROTUS ARVALIS - EVIDENCE FROM ANCIENT DNA. M. Baca, D. Popović, I. Horáček, P. Pazonyi, J.M. Lenardić, J.M. López-García and A. Nadachowski	17
SYSTEMATIC REASSESSMENT OF THE LATE BARREMIAN FROG WEALDENBATRACHUS JUCARENSIS FROM THE IBERIAN RANGES, EASTERN SPAIN A.M. Báez and R.O. Gómez	18
VERTEBRATE REMAINS IN THE COPROLITE ASSOCIATION FROM LAS HOYAS FOSSIL SITE S. Barrios-de Pedro, F.J. Poyato-Ariza and A.D. Buscalioni	19
THE FIRST DINOSAURIAN BRAINCASE FROM THE MIDDLE EAST: AN ENIGMATIC ORNITHOPOD BRAINCASE FROM THE LATEST CRETACEOUS (MAASTRICHTIAN) AL-KHOD FORMATION OF THE SULTANATE OF OMAN D. Bastiaans, A.-F. Hartman, M. Al-kindī, Y. Al Sinani and A.S. Schulp	20
GRAČANICA (BOSNIA AND HERZEGOVINA) AND GRATKORN (AUSTRIA): NEW MIDDLE MIOCENE CARNIVOROUS GUILDS K. Bastl, D. Nagel, M. Morlo and U.B. Göhlich	21
A WALK IN THE MAZE: DISCRIMINATING SMALL TRIDACTYL TRACKS FROM THE LATE JURASSIC OF JURA (NW SWITZERLAND) M. Belvedere, D. Castanera, D. Marty and C.A. Meyer	22
NEW SKELETONS OF THE MESOZOIC ORNITHURINE ICHTHYORNIS J. Benito, B.-A. Bhullar, D. Burnham, L.E. Wilson and D.J. Field	23
REFUGIA INSIDE A REFUGIUM: SMALL MAMMALS FROM THE ITALIAN PENINSULA DURING THE LATE PLEISTOCENE C. Berto, J.M. López-García and E. Luzi	24
CALIBRATING PLEISTOCENE AND HOLOCENE PALEOENVIRONMENTAL RECONSTRUCTIONS USING AN ACTUALISTIC HERPETOLOGICAL APPROACH: THE CASE OF ATAPUERCA (BURGOS, SPAIN) J.F. Bisbal-Chinesta, H.-A. Blain, R. Sánchez, L. Alberó, C. Ortega and G. Cuenca-Bescós	25
AMPHIBIANS AND SQUAMATE REPTILES FROM THE LATEST PLEISTOCENE OF THE CAVERNE MARIE-JEANNE (HASTIÈRE-LAVAUX, NAMUR) AND A REVIEW OF THE QUATERNARY HERPETOFAUNA FROM BELGIUM H.-A. Blain, A. Martínez-Monzón, J.M. López-García, I. Lozano-Fernández and A. Folie	26

THE ARCHOSAURIAN ASSEMBLAGE FROM THE BASTURS POBLE BONEBED (LATE CRETACEOUS, SPAIN): AN UPDATE A. Blanco	27
ASSESSING THE CROCODYLOMORPH DIVERSITY IN THE MAASTRICHTIAN (LATE CRETACEOUS) OF IBERO-ARMORICA, BASED ON TOOTH QUALITATIVE TRAITS A. Blanco <sup>1,2,*</sup> , E. Puértolas-Pascual <sup>3,4</sup> and J. Marmi <sup>5</sup>	28
PALAEOECOLOGY OF THE FISH ASSEMBLAGE FROM PONTILS (MIDDLE EOCENE, EBRO BASIN, NE SPAIN) A. Blanco, J. Marigó and R. Minwer-Barakat	29
CLETHRIONOMYINI FROM THE QUATERNARY DEPOSITS OF TETYUKHINSKAYA CAVE (FAR EAST, RUSSIA) A. Borodin, M. Fominykh, M. Tiunov, A. Usoltseva and S. Zykov	30
NEW DATA ON THE MIDDLE PLEISTOCENE MICROMAMMAL FAUNAS OF THE NORTH OF WESTERN SIBERIA A.V. Borodin <sup>1</sup> , L.E. Yalkovskaya <sup>1</sup> , and E.A. Markova <sup>1,*</sup>	31
PTEROSAUR TRACKS AND PHOTOGRAMMETRIC ICHNOLOGY: NEW VISUALIZATIONS OF THE THREE-DIMENSIONAL, TERRESTRIAL WORLD OF THE "DRAGON REPTILES" B.H. Breithaupt and N.A. Matthews	32
HISTORIC DISCOVERIES OF THE FIRST SAUROPODS FOUND IN THE "WILD WEST" OF WYOMING: FOUNDATIONAL RESEARCH ON COLOSSAL ANIMALS OF WORLD RENOWN B.H. Breithaupt and N.A. Matthews	33
RECOGNITION OF CROCODYLIFORM SPECIES IN THE FOSSIL RECORD: CHALLENGES AND OPPORTUNITIES FROM MODERN CRYPTIC SPECIES C.A. Brochu	34
THERAPSID SCRATCHES FROM THE MIDDLE TO LATE PERMIAN OF NORTHERN GERMANY AND THE EVOLUTION OF TETRAPOD SCRABBLING BEHAVIOR M. Buchwitz, M. Jansen, L. Marchetti, J. Lallensack, L. Luthardt and F. Trostheide	35
STUDY OF THE LOWER DENTITION OF THE CAMELID PARACAMELUS AGUIRREI FROM VENTA DEL MORO (VALENCIA, SPAIN) Ó. Caballero, V.D. Crespo, A. Fagoaga, R. Marquina, J. Abella, J. Morales and P. Montoya	36
A TENTATIVE ASSESSMENT OF THE PHYLOGENETIC RELATIONSHIPS OF PYRENASAURUS (SQUAMATA) M. Camaiti, A. Villa, A. Bolet and M. Delfino	37
THE FIRST RECORD OF PLACODONTS IN PORTUGAL AND ITS CHRONOLOGICAL AND PALEOECOLOGICAL IMPLICATIONS H. Campos and O. Mateus	38
PHYLOGENETIC SIGNAL OF MOLAR OUTLINES OF TWO RODENT GENERA (CRICETODON AND HISPANOMYS) P.M. Carro-Rodríguez, P. López-Guerrero, A.R. Gómez Cano and Á. Álvarez-Sierra	39
COMPLETENESS OF THE TEMNOSPONDYL AMPHIBIAN FOSSIL RECORD D.D. Cashmore, G.T. Lloyd and R.J. Butler	40

JURASSIC RACE: A COLLABORATIVE PEDAGOGICAL ACTIVITY BETWEEN PALEONTOLOGISTS, MATHEMATICS AND SCIENCE EDUCATION TEACHERS B. Cavadas , N. Mestrinho and O. Mateus	41
INDIAN TREMATOSAURID AMPHIBIANS: A TALE OF TWO FORMS S. Chakravorti and D.P. Sengupta	42
ACINONYX PARDINENSIS (FELIDAE, MAMMALIA) 'RE-DISCOVERED' AT MONTE ARGENTARIO (ITALY, EARLY PLEISTOCENE) THANKS TO SYNCHROTRON MICROTOMOGRAPHY M. Cherin , D.A. Iurino , M. Zanatta , V. Fernandez , A. Paciaroni , C. Petrillo , R. Rettori and R. Sardella	43
ECOLOGICAL NICHE MODELLING SUPPORTS SUSTAINED DINOSAUR DIVERSITY TRENDS PRIOR TO THE CRETACEOUS/PALEOGENE MASS EXTINCTION A.A. Chiarenza , P.D. Mannion , P.A. Allison , D.J. Lunt , A. Farnsworth and S. Kelland	44
REAPPRAISAL OF THE DISTRIBUTION AND STRATIGRAFIC RECORD OF THE ALLIGATOROID DIPLOCYNODON RATELII POMEL, 1847 IN EUROPE M. Chroust *, A. Čerňanský , M. Ivanov and Ā.H. Luján	45
NEW MORPHOLOGICAL, EVOLUTIONARY AND PALEOECOLOGICAL INTERPRETATIONS ON THE GENUS EOCAIMAN (CROCODYLIA, CAIMANINAE) FROM THE CENOZOIC OF SOUTH AMERICA G.M. Cidade * and A.S Hsiou	46
THE EVOLUTIONARY, BIOGEOGRAPHICAL AND ECOLOGICAL HISTORY OF SOUTH AMERICAN CENOZOIC CROCODYLOMORPHS: AN UPDATED REVIEW WITH NEW PERSPECTIVES G.M. Cidade * and A.S Hsiou	47
GEOGRAPHIC SAMPLING BIASES LIMIT OUR UNDERSTANDING OF THE FOSSIL RECORDS OF NON-MARINE LEPIDOSAURS AND TURTLES T.J. Cleary , R.B.J. Benson , S.E. Evans and P.M. Barrett	48
LOWER TETRAPODS FROM THE EARLY OLIGOCENE OF TRANSYLVANIA V.A. Codrea and M. Venczel	49
ALCOVASAURUS LONGISPINUS AS A DACENTRURINE STEGOSAUR (DINOSAURIA) AND CONTRIBUTIONS TO THE DIAGNOSIS OF DACENTRURINAE F. Costa and O. Mateus	50
EARLY MIOCENE MAMMAL ASSEMBLAGES FROM THE CAMPISANO RAVINE IN THE RIBESALBES-ALCORA BASIN (EASTERN SPAIN) V.D. Crespo , O. Suárez-Hernando , R. Marguina , A. Fagoaga , X. Murelaga , F.J. Ruiz-Sánchez and P. Montoya	51
PRELIMINARY REPORT OF A FOSSIL LIZARD SKULL FROM LA PALMA (CANARY ISLANDS) P. Cruzado-Caballero , C. Castillo , J. Fortuny , A. Bolet , R. Casillas , F. Bernardini and J.R. Colmenero	52
MIND THE GAP! – SIGNIFICANCE OF A NEW LATEST CRETACEOUS FOSSILIFEROUS SITE IN THE NORTHERN HAȚÉG BASIN, ROMANIA Z. Csiki-Sava , Ș. Vasile , D. Grigorescu and M. Vremir	53
SCANNING THE SKULL OF PELECANIMIMUS POLYODON (ORNITHOMIMOSAURIA, EARLY CRETACEOUS, SPAIN): OSTEOLOGICAL APPROACH E. Cuesta , F. Ortega and J.L. Sanz	54

CINGULATA JAW DISPARITY S. De Esteban-Trivigno	55
REVISITING THE BIODIVERSITY CURVE OF MODERN CROCODILES (CROCODYLIFORMES, EUSUCHIA) A. de Celis , I. Narváez and F. Ortega	56
DISCOVERY OF A TRICERATOPS BONEBED: TRICERATOPS LONG BONE HISTOLOGY AND THE LATITUDINAL GRADIENT HYPOTHESIS J. de Rooij , A.S. Schulp , J.W.F Reumer and K. Stein	57
USING THE MUSCULOSKELETAL SYSTEM AS AN INTERDEPENDENT METHOD TO COMPARE LOCOMOTOR HABITS: TWO TENDAGURU SAUROPODS (DINOSAURIA) AS CASE STUDY V. Díez Díaz , H. Mallison and D. Schwarz	58
THE LATE CRETACEOUS TITANOSAURIAN SAUROPOD DINOSAURS OF EUROPE AND AFRICA: UPDATE AND SYNTHESIS V. Díez Díaz , E. Gorscak , M.C. Lamanna , P.D. Mannion , F. Holwerda , X. Pereda Suberbiola and I.A. El-Dawoudi	59
A NEW TITANOSAURIAN SAUROPOD FROM THE LATE CRETACEOUS OF VELAUX-LA BASTIDE NEUVE (SOUTHERN FRANCE) V. Díez Díaz , G. Garcia , X. Pereda Suberbiola , B. Jentgen-Ceschino , K. Stein , P. Godefroit and X. Valentin	60
SMALL MAMMALS FROM THE HOLOCENE ARCHAEOLOGICAL SITE OF CASTILLEJO DEL BONETE (TERRINCHES, CIUDAD REAL, SPAIN) A.C. Domínguez García , C. Laplana , P. Sevilla , H.-A. Blain , N. Palomares Zumajo and L.B. de Lugo Enrich	61
A CUON SP. OCCURRENCE IN THE UPPER PLEISTOCENE DEPOSITS OF STOieni CAVE, SOUTHWESTERN ROMANIA V. Drăguşin , Ş. Vasile , A. Petculescu , S. Constantin , U.H. Taron , M. Hofreiter , and J.L.A. Pajmans	62
ADAPTATIONS FOR SCRATCH-DIGGING BEHAVIOUR IN FORELIMBS OF THE AETOSAUR STAGONOLEPIS OLENKAE (ARCHOSAURIA; PSEUDOSUCHIA) FROM KRASIEJÓW LOCALITY IN POLAND D. Drózdź	63
NEW MATERIAL OF ANKYLOPOLLEXIAN ORNITHOPODS FROM THE UPPER JURASSIC OF PORTUGAL F. Escaso , E. Malafaia , E. , P. Mocho , I.Narváez , J.L. Sanz , F. Ortega	64
THE HISTORY OF THE QUATERNARY VERTEBRATE PALEONTOLOGY IN PORTUGAL D. Estraviz López and O. Mateus	65
INSECTIVOROUS MAMMALS OF THE SOUTHERN URAL (LATE PLEISTOCENE – PRESENT TIME) T. Fadeeva , P. Kosintsev and D. Gimranov	66
PALAEOECOLOGICAL INSIGHTS FOR THE DISAPPEARANCE OF NEANDERTHALS THROUGH SMALL MAMMALS FROM EL SALT (SPAIN) A. Fagoaga , Francisco J. Ruiz-Sánchez , R. Marquina-Blasco , C. Laplana , C.M. Hernández , C. Mallol and B. Galván	67
A NEW EARLY EOCENE LOCALITY WITH PRIMATE REMAINS IN THE IBERIAN PENINSULA J. Femenias-Gual , R. Minwer-Barakat , J. Marigó and S. Moyà-Solà	68

UNRAVELLING THE OXYGEN ISOTOPE SIGNAL FROM RODENT TEETH IN NORTHEASTERN IBERIA: THE XARAGALLS CAVE CASE M. Fernández-García , A. Royer and J.M. López-García	69
GEOMETRIC MORPHOMETRICS AS A COMPLEMENTARY METHOD IN THE STUDY OF CHONDRICHTHYES DENTAL MORPHOLOGIES P.R. Fialho and A.C. Balbino	70
ORNITHOPOD DINOSAURS FROM THE PAPO-SECO FORMATION (CABO ESPICHEL, WESTERN CENTRAL PORTUGAL) S.D. Figueiredo , X.P. Suberbiola , P.P. Cunha , M.F. Sousa and M. Gomes	71
10 MILLION YEARS OF SOLITUDE: THE SCARCE PALEOCENE VERTEBRATE RECORD OF THE SOUTHERN PYRENEES V. Fondevilla , R. Minwer-Barakat , J. Marigó , J. Femenias-Gual and S. Moyà-Solà	72
TREMATOSAURS: A NEW LOOK TO THE EARLY TRIASSIC GENUS ANGUSAURUS (TEMNOSPONDYLI: STEREOSPONDYLI) BASED ON X-RAY MICROCT SCANNING J. Fortuny , M. Fernández-Coll , T. Arbez and F. Bernardini	73
A MILLION YEARS OF BAT FOSSIL RECORD FROM TWO OF THE ATAPUERCA CAVE-LOCALITIES J. Galán , C. Núñez-Lahuerta , R. Moya-Costa , J.M. López-García and G. Cuenca-Bescós	74
USING 3D GEOMETRIC MORPHOMETRICS TO ESTIMATE MISSING VERTEBRAE IN A SPINOPHOROSAURUS DORSAL SPINE (MIDDLE JURASSIC, NIGER) D. García-Martínez , D. Vidal and F. Ortega	75
NEW INSIGHTS INTO THE PALAEOHISTOLOGY OF THE TITANOSAUR SAUROPODS FROM THE UPPER CRETACEOUS OF LO HUECO (CUENCA, SPAIN) F. Gascó , D. Vidal , A. Paramo , P. Mocho and F. Ortega	76
NEW IGUANODON BERNISSARTENSIS CRANIAL MATERIAL FROM THE UPPER BARREMIAN MAS DE LA PARRETA QUARRY (MORELLA FORMATION) IN MORELLA (SPAIN) J.M. Gasulla , F. Escaso , I. Narváez , J.L. Sanz and F. Ortega	77
AMPHIBIANS AND REPTILES FROM THE EARLY MIOCENE OF WEISENAU IN THE HISTORICAL COLLECTIONS OF THE UNIVERSITY OF TORINO S. Gobbi , A. Villa and M. Delfino	78
PALEOPATHOLOGICAL TRAITS IN THE CAUDAL VERTEBRAE OF THE TITANOSAUR DINOSAURS OF THE UPPER CRETACEOUS OF LO HUECO (FUENTES, CUENCA) A. Guerrero and F. Ortega	79
CROCODYLOMORPH TEETH FROM THE LOURINHÃ FORMATION, PORTUGAL (LATE JURASSIC) A.R.D. Guillaume , M. Moreno-Azanza , E. Puértolas-Pascual and O. Mateus	80
THE TAPHONOMY OF ICHTHYOSAURS: WHAT “LANDING POSITIONS” CAN TELL US ABOUT PALEOBIOLOGY J. Heijne and P.M. Sander	81

THE DIVERSE DISARTICULATION PATTERNS OF MARINE REPTILES FROM THE MIDDLE TRIASSIC LAGERSTÄTTE OF WINTERSWIJK, THE NETHERLANDS, PROVIDE INSIGHTS INTO THEIR PALEOENVIRONMENT J. Heijne , N. Klein and P.M. Sander	82
TITANOSAURIAN TEETH TELL TALE OF TRANS-MEDITERRANEAN TRAVEL F. Holwerda , V. Díez Díaz , R. Montie and J. Reumer	83
MARK, SHELLY, AND THE PHILLIPS JOIN THE PARTY: ADDITIONAL SAUROPOD MATERIAL FROM THE CALLOVIAN PETERBOROUGH OXFORD CLAY F. Holwerda , M. Evans and J. Liston	84
RUTLAND REVISITED: THE RUTLAND CETIOSAURUS F. Holwerda , P. Upchurch , J. Martin and M. Evans	85
THE EARLY HOLOCENE FAUNAL REARRANGEMENTS IN A HIGH-RESOLUTION FOSSIL RECORD I. Horáček , M. Knitlová , T. Putalová , J. Wagner and S. Čermák	86
LIGHTNING AND THE THUNDER: INSULAR DWARFISM INFERRED FROM LONG BONE HISTOLOGY OF THE TITANOSAURIAN ATsinganosaurus velauciensis B. Jentgen-Ceschino , K. Stein , V. Díez Díaz , G. Garcia , X. Valentin and V. Fischer	87
EVOLUTIONARY RELATIONSHIPS WITHIN TELEOSAUROIDEA (CROCODYLOMORPHA, THALATTOSUCHIA) AND IMPLICATIONS FOR MARINE ADAPTATIONS M.M. Johnson , M.T. Young and S.L. Brusatte	88
BODY MASS RECONSTRUCTIONS OF LATE PLEISTOCENE SPOTTED HYAENAS (CROCUTA CROCUTA, ERXLEBEN 1777) FROM EUROPE A.K. Jones , D. Schreve and C. Carbone	89
PLEISTOCENE SMALL VERTEBRATE STUDIES IN SERBIA (BALKAN PENINSULA, SE EUROPE): STATE OF THE ART AND PERSPECTIVES M. Jovanović , D. Đurić , K. Bogićević , D. Nenadić , J. Agustí and H.-A. Blain	90
SEMANTOR MACRURUS ORLOV, 1931 – NEW VIEW ON ITS MORPHOLOGY AND PALEOBIOLOGY A.V. Lavrov , K.K. Tarasenko and A.N. Vlasenko	91
MANUS EVOLUTION IN DINOSAURIA – PATTERNS OF DIGIT REDUCTION AND LOSS J.V. Leite , A. Goswami and P.M. Barrett	92
THE SHOCK OF UNEXPECTED CONSERVATISM: A COUNTER-SIGNAL TO PACHYCORMID DIVERGENCE? Jeff Liston and Anthony Maltese	93
HIGH DIVERSITY OF SMALL DINOSAURS PRECEDING THE CRETACEOUS/ PALEOGENE MASS EXTINCTION N. Longrich and A.A. Chiarenza	94
THREE NEW SPECIES OF MIDDLE TRIASSIC EOSEMIONOTUS STOLLEY, 1920 (ACTINOPTERYGII: NEOPTERYGII) FROM MONTE SAN GIORGIO A. López-Arbarello *, T. Bürgin , H. Furrer and R. Stockar	95

NEW CLUES ABOUT THE LATE EARLY PLEISTOCENE PEOPLING OF WESTERN EUROPE: SMALL VERTEBRATES FROM THE BOIS-DE-RIQUET ARCHEO-PALEONTOLOGICAL SITE (LÉZIGNAN-LA-CÈBE, SOUTHERN FRANCE)	96
I. Lozano-Fernández, H.-A. Blain, P. Piñero, J. Agustí, D. Barsky, J. Ivorra and L. Bourguignon	
FOSSIL CROCODYLIANS FROM THE MIOCENE OF THE VALLÈS-PENEDÈS BASIN (NE IBERIAN PENINSULA)	97
À.H. Luján, M. Delfino, J.L. Díaz-Aráez, M. Ivanov, I. Casanovas-Vilar and D.M. Alba	
THE FIRST RECORD OF THE GIANT TORTOISE FROM THE MIDDLE MIOCENE OF THE CZECH REPUBLIC	98
À.H. Luján, J. Březina, M. Ivanov and G. Calábková	
RELATIVE SIZE VARIATIONS OF MICROTUS ARVALIS AND MICROTUS AGRESTIS AS CLIMATIC PROXY: THE CASE OF GROTTA FUMANE	99
E. Luzi, J.M. López-García and M. Peresani	
THE TAPIR FORELIMB AS A MORPHOFUNCTIONAL ANALOGUE FOR EOCENE EQUOID LOCOMOTION	100
J.A. MacLaren* and S. Nauwelaerts	
NEW THEROPOD POSTCRANIAL REMAINS FROM THE UPPER BARREMIAN OF SPAIN AND ITS IMPLICATION FOR BARYONICHINE DIVERSITY	101
E. Malafaia, J.M. Gasulla, F. Escaso, I. Narváez, J.L. Sanz and F. Ortega	
RAPID LOCOMOTION IN SAUROPODOMORPH DINOSAURS: RATES WALKING INSTEAD OF RUNNING AS A MEANS TO DEAL WITH LARGE BODY MASS?	102
H. Mallison and O.E. Demuth	
WEAPONS-GRADE SAUROPODS OF THE BLACK HILLS: A RADIOACTIVE ASSEMBLAGE OF JURASSIC SKELETONS AWAITING DESCRIPTION	103
A. Maltese, F. Holwerda and E. Tschopp	
EVOLUTIONARY RELATIONSHIPS AND BIOGEOGRAPHIC HISTORY OF EUSAUROPOD DINOSAURS	104
P.D. Mannion and P. Upchurch	
RESPONSE SURFACE OPTIMIZATION METHODS TO INFER MUSCLE FORCES IN FOSSIL TAXA: EKEMBO AS AN EXAMPLE	105
J. Marcé-Nogué	
CLEANING PELECANIMIMUS (ORNITHOMIMOSAURIA, EARLY CRETACEOUS, SPAIN)	106
F. Marcos-Fernández, S. Bartolomé, S. López, I. Martínez, M. Onrubia, A. Yagüe and F. Ortega	
REDISCOVERY OF THE LOCALITY OF MURS (OLIGOCENE, SOUTHEASTERN FRANCE): FIRST RESULTS OF THE NEW EXCAVATIONS	107
O. Maridet, C. Balme, O. Lapause, S. Legal, X.-Y. Lu, B. Mennecart, J. Tissier, D. Vasilyan and L. Costeur	
LOCOMOTOR BEHAVIOR OF ADAPIS PARISIENSIS REVISITED: INSIGHTS FROM HUMERAL REMAINS OF HIGH MORPHOLOGICAL DIVERSITY	108
J. Marigó, N. Verrière and M. Godinot	
A FOSSIL PREPARATION LABORATORY AS A PEDAGOGICAL FACILITY: THE DINOPARK LOURINHÃ (PORTUGAL)	109
J. Marinheiro, A. Saleiro and S. Mateus	

WILD-CAT SCATS: TAPHONOMIC ANALYSIS OF SMALL MAMMAL REMAINS M.D. Marin-Monfort , S. García-Morato R.Olucha , A. Fagoaga and Y. Fernández-Jalvo	110
YES, WE CAN HOMOLOGIZE SKULL (AND OTHER) BONES OF ACTINOPTERYGIANS AND TETRAPODS D. Marjanović	111
EFFECTS OF POPULATION BOTTLENECKS ON PHENOTYPIC VARIATION IN EXTANT ARVICOLINE RODENTS: IMPLICATIONS FOR STUDIES OF THE QUATERNARY FOSSIL RECORD E.A. Markova , A.V. Bobretsov , P.A. Sibiriyakov , N.G. Smirnov , S.V. Zykov and L.E. Yalkovskaya	112
HERPETOFAUNAL REMAINS FROM UPPER UNIT V FROM EL SALT (ALCOI, SPAIN): PRELIMINARY STUDY R. Marquina-Blasco , F.J. Ruiz-Sánchez ,A. Fagoaga , S. Bailon , C.M. Hernández , C. Mallol and B. Galván	113
MICROVERTEBRATES (AMPHIBIA, SQUAMATA, LAGOMORPHA, RODENTIA AND INSECTIVORA) FROM STRATIGRAPHICAL UNIT XB OF EL SALT (MIDDLE PALAEOLITHIC; ALCOI, SPAIN) R. Marquina-Blasco , A. Fagoaga , F.J.Ruiz-Sánchez , S. Bailon , C.M. Hernández , C. Mallol and B. Galván	114
THE FIRST FIND OF THE MAMMOTHUS TROGONOTHERII (POHLIG, 1885) SKELETON FROM THE PLEISTOCENE OF PERM REGION AND POLYTYPICAL MORPHOLOGY OF THE EURASIA STEPPE MAMMOTH E. Maschenko and E. Voskresenskaya	115
NEW INFORMATION ON THE DEEP-BODIED ACTINOPTERYGIAN DAPEDIUM FROM THE TRIASSIC-JURASSIC OF EUROPE E.E. Maxwell and A. López-Arbarello	116
TRACKING EARLY SAUROPODOMORPHS C.A. Meyer , M. Belvedere , H. Klein , J. Lallensack , O. Wings and S.G. Lucas	117
ONTOGENETIC CHANGES IN THE BRAINCASE OF STENOPTERYGIUS F. Miedema and E.E. Maxwell	118
A NEW SPANISH PLACODONT THAT PROVIDES NEW INFORMATION ON THE EVOLUTION OF THE BIZARRE HENODONTIDAE C. de Miguel Chaves , F. Ortega and A. Pérez-García	119
ON THE DISPERSAL OF THE AFRICAN RODENT MYOCRICETODON INTO EUROPE AT THE END OF THE MESSINIAN R. Minwer-Barakat , J. Agustí , A. García-Alix and E. Martín-Suárez	120
REVISION OF THE PRIMATE MATERIAL FROM ROC DE SANTA (LATE EOCENE, NE SPAIN) R. Minwer-Barakat , J. Marigó and S. Moyà-Solà	121
RECENT DISCOVERIES OF MICROCHOERINAE (PRIMATES) FROM THE EOCENE OF WESTERN AND CENTRAL EUROPE SHED NEW LIGHT ON THE EARLY EVOLUTION OF HAPLORHINES R. Minwer-Barakat , J. Marigó , J. Femenias-Gual , L. Costeur , S. De Esteban-Trivigno and S. Moyà-Solà	122



DIPLODOCINES OF THE GNATALIE QUARRY, A NEW BONE-BED ACCUMULATION FROM SOUTHERN UTAH (MORRISON FM., USA) P. Mocho and L. Chiappe	123
NEW INFORMATION ABOUT THE APPENDICULAR SKELETON OF SPINOPHOROSAURUS NIGERENSIS (MIDDLE JURASSIC, NIGER) P. Mocho , D. Vidal , A. Aberasturi , R. Kosma and F. Ortega	124
LATE JURASSIC SAUROPODS OF PORTUGAL: WHERE ARE WE NOW? P. Mocho , R. Royo-Torres and F. Ortega	125
THE MORPHOLOGICAL VARIABILITY ON TITANOSAUR CAUDAL SERIES FROM LO HUECO: TAXONOMIC DIVERSITY, INTRA-SPECIFIC VARIABILITY OR BOTH? P. Mocho , F. Escaso , F. Marcos-Fernández , A. Parámo , D. Vidal and F. Ortega	126
ON THE WAY TO ISLANDS: ASSESSING THE DISPERSAL WAYS USED BY INSULAR EXTINCT RODENTS TO SETTLE IN MEDITERRANEAN ISLANDS (PLIO- QUATERNARY) B. Moncunill-Solé and A. Blanco	127
FIRST RECORD OF A PALEOPATHOLOGY IN A TIBIA OF A LAGOMORPH (MIDDLE MIOCENE, GERMANY) B. Moncunill-Solé , X. Jordana , G. Rössner and C. Angelone	128
ARCTIC HABITAT AND CLIMATE CHANGE: MORPHOLOGICAL VARIATION IN EXTANT AND FOSSIL DICROSTONYX SPECIES S. Montuire , A. Royer , R. Laffont , E. Steimetz and N. Navarro	129
SHAPE DESCRIPTORS AND STATISTICAL CLASSIFICATION OF MORPHOLOGICALLY CLOSE SPECIES: THE CASE OF TWO MICROTINES (RODENTIA) AND PALEOBIOGEOGRAPHICAL IMPLICATIONS S. Montuire , A. Royer , R. Laffont , E. Steimetz and N. Navarro	130
DIGITAL RECONSTRUCTION OF THE SKULL OF TWO EARLY PLEISTOCENE SHREWS R. Moya-Costa and G. Cuenca-Bescós	131
TREASURES FROM THE DEPTHS: FIRST RECORD OF TUSCIZIPHIUS (FOSSIL BEAKED WHALE) FROM THE AZORES ISLANDS DEEP WATERS AND THE IMPORTANCE OF LOCAL COMMUNITIES TO SCIENCE J. Muchagata , O. Mateus and R. Prieto	132
ARCHOSAUIROMORPH LOCOMOTION IN THE EARLY-MIDDLE TRIASSIC: AN APPROACH BASED ON TRACKS AND TRACKWAYS FROM THE CATALAN PYRENEES (NE IBERIAN PENINSULA) E. Mujal , J. Fortuny , A. Bolet and O. Oms	133
SUBTROPICAL STEPPE IN THE LATE PLEISTOCENE OF EASTERN MIDDLE EUROPE D. Nagel , J. Lindenbauer , N. Kavcik-Graumann and G. Rabeder	134
SYSTEMATICS OF ALLODAPOSUCHID CROCODYLIFORMS FROM THE MAASTRICHTIAN (LATE CRETACEOUS) OF ROMANIA AND THE STATUS OF ALLODAPOSUCHUS PRECEDENS NOPCSA 1928 I. Narváez , C.A. Brochu , A. de Celis , M. Delfino , A. Pérez-García , M. Rabi and F. Ortega	135
AN UPDATE ON THE CROCODYLIFORM FAUNA FROM THE CENOMANIAN SITE OF ALGORA (GUADALAJARA, SPAIN) I. Narváez , F. Escaso , F. Ortega , and A. Pérez-García	136

THEROPOD GREGARIOUSNESS: POSSIBLE EVIDENCES IN TRACKSITES FROM LA RIOJA, SPAIN P. Navarro-Lorbés , E. Torices , E. García-Ortiz and I. Díaz-Martinez	137
BEAR TRACKS IN THE PLEISTOCENE AT NORTH OF PRAIA DO CAVALO, ODEMIRA (PORTUGAL) C. Neto de Carvalho	138
GEOMETRY MORPHOMETRIC APPLIED ON THE OCCLUSAL SURFACE OF THE UPPER MOLARS OF YINDIRTEMYS DEFLEXUS (CTENODACTYLIDAE, RODENTIA, MAMMALIA) A. Oliver and A.R. Gómez Cano	139
A NEW TRIASSIC (LADINIAN/CARNIAN) VERTEBRATE LOCALITY FROM VILLÁNY, SOUTHERN HUNGARY A. Ősi , M. Szabó , M. Segesdi and G. Botfalvai	140
SEASONAL PATTERNS AND ECOLOGY OF TARBOSAURUS BATAAR (NEMEGT FORMATION, MONGOLIA) INFERRED FROM STABLE OXYGEN AND CARBON ISOTOPES IN TOOTH ENAMEL K. Owocki , H. Bocherens , B. Kremer , G. Niedźwiedzki and M. Cotte	141
PUTATIVE ONTOGENIC AND INDIVIDUAL NICHE SPECIALIZATION OF TARBOSAURUS BATAAR (NEMEGT FORMATION, MONGOLIA) INFERRED FROM STABLE CARBON ISOTOPES K. Owocki , H. Bocherens , G. Niedźwiedzki and M. Cotte	142
INTRA-INDIVIDUAL VARIABILITY AND STRONTIUM ISOTOPE MEASUREMENTS IN TARBOSAURUS BATAAR (LATE CRETACEOUS, MONGOLIA) K. Owocki , H. Bocherens , G. Niedźwiedzki and M. Cotte	143
EARLY MIOCENE SNAKES FROM THE LOCALITY OF WINTERSHOF-WEST (GERMANY) V. Paclík , M. Ivanov and À.H. Luján	144
NEW MAMMALIAN TRACKS FROM A PALEOGENE (EOCENE-OLIGOCENE) LOCALITY OF PUEBLA, CENTRAL MEXICO A. Palma-Ramírez , I. López-Palomino , R. Sáenz-Pita , V. Bravo-Cuevas , M. Cabral-Perdomo and A. Monier-Castillo	145
MODULARITY IN THE TITANOSAURIAN APPENDICULAR SKELETON: INSIGHTS FROM LO HUECO FOSSIL SITE A. Páramo , F. Ortega and J.L. Sanz	146
INTRASPECIFIC VARIABILITY IN AND ITS EFFECTS ON SYSTEMATIC ASSESSMENT OF THE TITANOSAURS FROM LO HUECO (LATE CRETACEOUS. CUENCA, SPAIN) A. Páramo , P. Mocho , F. Ortega and J.L. Sanz	147
FACTORS AFFECTING THE INCIDENCE OF PALAEOPATHOLOGY IN EARLY JURASSIC ICHTHYOSAURS	148
J. PARDO-PÉREZ , E. MAXWELL AND B. KEARA NEW SPECIMEN OF «ARCHAEOTHERIUM» CLAVUM (ARTIODACTYLA, ENTELODONTIDAE) AND A PHYLOGENETIC PROPOSAL FOR THE ENTELODONTIDAE R.V. Pêgas , K.L.N. Bandeira , I. Bonilla-Salomón , B. Holgado , A.S. Brum , D.A. Campos and R.G. Souza	149

NEW DATA ON THE BOTHREMYDID TURTLES FROM THE SPANISH UPPER CRETACEOUS SITE OF LO HUECO A. Pérez-García and F. Ortega	150
IDENTIFICATION OF THE EUROPEAN CENOMANIAN BOTHREMYDID TURTLE ALGORACHELUS IN MIDDLE EAST AND NORTH AMERICA A. Pérez-García	151
NEW INFORMATION ABOUT THE EARLY EOCENE BOTHREMYDID REMAINS FROM THE BRITISH RECORD A. Pérez-García	152
THE ARARIPEMYDID TURTLES FROM THE AFRICAN APTIAN LOCALITY OF GADOUFAOUA (NIGER): AN UPDATE A. Pérez-García	153
THE HINDLIMB MUSCULATURE OF THE TRIASSIC DINOSAURIFORM <i>SILESAURUS OPOLENSIS</i> R. Piechowski and M. Tałanda	154
DISTRIBUTION OF THE SPECIES MAMMUTHUS TROGONOTHERII ON THE TERRITORY OF OLTENIA (SW OF ROMANIA) A. Popescu	155
FRILL ONTOGENY, MODULARITY AND HETEROCHRONY IN NEOCERATOPSIAN DINOSAURS A. Prieto-Márquez, S.H. Joshi, J. García-Porta and P.J. Makovicky	156
A FOSSIL MORID COD (MORIDAE) FROM OLIGOCENE DEPOSITS OF MORAVIA (CZECH REPUBLIC) T. Přikryl	157
A NEW 3D PRESERVED ARTICULATED PARTIAL SKELETON OF NEOSUCHIA FROM THE UPPER JURASSIC OF PORTUGAL E. Puértolas-Pascual and O. Mateus	158
AN ALLOSAUROID FROM THE EARLY-MIDDLE JURASSIC OF PATAGONIA AND PHYLOGENETIC UNCERTAINTY AT THE BASE OF TETANURAE O.W.M. Rauhut and D. Pol	159
A REASSESSMENT OF THE PHYLOGENY OF BASAL SAUROPODOMORPHS THROUGH COMPARATIVE CLADISTICS AND THE SUPER-MATRX APPROACH O.R. Regalado-Fernandez, P. Upchurch, P.M. Barrett, P. Mannion and S. Maidment	160
THE DENTITION OF THE LATE JURASSIC DWARF SAUROPOD EUROPASAURUS HOLGERI FROM NORTHERN GERMANY: ONTOGENY AND FUNCTION V.S. Régent, P.M. Sander, K. Wiersma* and O. Wings	161
SMALL VERTEBRATE ASSEMBLAGE FROM THE LATE PLEISTOCENE OF KALDAR CAVE (KHORRAMABAD VALLEY, IRAN) I. Rey-Rodríguez, J.M. López-García, H.-A. Blain, E. Stoetzel, C. Denys, M. Fernández-García, L. Tumung, A. Ollé and B. Bazgir	162
FOSSIL VERTEBRATES IN THE PALEONTOLOGICAL COLLECTIONS OF THE SCIENCE MUSEUM (UNIVERSITY OF COIMBRA, PORTUGAL) C. Ribeiro, P. Callapez and O. Mateus	163

VALIDATED 3D RECONSTRUCTIONS OF THE HOMININ AXIAL SKELETON: THE THORACIC SPINE	164
A. Riesco López , B. Beyer , D. Garcia Martínez , S. Nalla , J.A. Sanchis Gimeno and M. Bastir	
FOSSIL LAND TORTOISES OF THE CANARY ISLANDS	165
S. Rodríguez-González , C. Castillo , E. Martín-González and P. Cruzado-Caballero	
DRYOSAURID ORNITHOPODS FROM THE LATE JURASSIC OF PORTUGAL: AN OVERVIEW	166
F.M. Rotatori , M. Moreno-Azanza and O. Mateus	
ASSESSING THE MESOZOIC RECORD OF IBERIAN THEROPODA	167
F. Sanguino and A.D. Buscalioni	
A REAPPRAISAL OF THE BIOCHRONOLOGY OF THE VILLAFRANCHIAN FAUNAL ASSEMBLAGE OF COLLEPARDO (CENTRAL ITALY)	168
R. Sardella , L. Bellucci , J. Conti , D.A. Iurino , F. Strani and I. Mazzini	
THE PLEISTOCENE VERTEBRATES FROM GROTTA ROMANELLI (APULIA, SOUTHERN ITALY)	169
R. Sardella , L. Bellucci , F. Bona , J. Conti , D.A. Iurino , B. Mecozzi , F. Strani and I. Mazzini	
DO DIFFERENT METHODS OF MEASURING MORPHOLOGICAL DISPARITY SHOW SIMILAR SIGNALS? A STUDY OF THE THEROPOD MANDIBLE	170
J. Schaeffer , T.L. Stubbs , M.J. Benton and E.J. Rayfield	
RECENT DEVELOPMENTS AND CURRENT QUESTIONS IN QUATERNARY MICROVERTEBRATE STUDIES	171
D. Schreve	
THALATTOSUCHIAN CROCODYLOMORPHS - A MAJOR EVOLUTIONARY TRANSITION FROM LAND TO WATER	172
J. Schwab , M.T. Young , S. Walsh , L.M. Witmer , Y. Herrera and S.L. Brusatte	
A NEW NOTOSUCHIAN CROCODYLOMORPH FROM THE EARLY MAASTRICHTIAN OF NORTHEASTERN IBERIAN PENINSULA	173
A.G. Sellés , A. Blanco , J. Marmi , F.J. López-Soriano , B. Vila À. Galobart	
“NEW” OLD ICHTHYOSAURS FROM THE VERONA MUSEUM: THREE RE-DISCOVERED MARINE REPTILES FROM THE UPPER JURASSIC OF VENETO REGION (NORTHERN ITALY)	174
G. Serafini , L. Giusberti , E. Maxwell , M. Cobianchi , B. Fornaciari , C.A. Papazzoni and G. Roghi	
THE FIRST RECORD OF DORMOUSE (GLIRIDAE, RODENTIA) IN THE PLEISTOCENE OF NORTH-WESTERN ALTAI (RUSSIA)	175
N.V. Serdyuk and A.I. Krivoshapkin	
NEUROANATOMY OF LOHUECOSUCHUS MEGADONTOS (EUSUCHIA, ALLODAPOSUCHIDAE) FROM THE CAMPANIAN-MAASTRICHTIAN (LATE CRETACEOUS) OF SPAIN	176
A. Serrano-Martínez , F. Knoll , I. Narváez , S. Lautenschlager and F. Ortega	
BETTER PHYLOGENIES FROM MORPHOLOGY: DATA FROM EXTANT CROCODYLIANS	177
R.B. Sookias	

BISON REMAINS FROM THE LATEST EARLY PLEISTOCENE OF VALLPARADÍS SECTION (VALLÈS-PENEDÈS BASIN, IBERIAN PENINSULA) AND COMPARISON WITH THE BOVID SAMPLE FROM ELLERA DI CORCIANO (ITALY) L. Sorbelli, M. Cherin, D.M. Alba and J. Madurell-Malapeira	178
A REVIEW OF ICHTHYOSAURIA FROM PORTUGAL J. Sousa and O. Mateus	179
EGGSHELL OF EARLY JURASSIC BASAL SAUROPODOMORPH DINOSAURS K. Stein, E. Prondvai, T. Huang, J.-M. Baele, P.M. Sander and R. Reisz	180
STATE OF THE ART ON QUATERNARY MICROVERTEBRATES FROM NORTHWESTERN AFRICA E. Stoetzel	181
BONE MICROSTRUCTURE OF OSMOLSKINA CZATKOWICENSIS, AN EARLY TRIASSIC ARCHOSAURIFORM FROM POLAND P. Świś, J. Słowiak and L. Fostowicz-Frelík	182
HOW MESOZOIC PALAEOGEOGRAPHY AFFECTS THE PRESENT DISTRIBUTION OF SQUAMATES M. Tałanda	183
A NEW FINDING OF A PERINATE BALEEN WHALE (MAMMALIA: CETACEA) FROM LOCALITY FORTEP'YANKA 2 (REPUBLIQUE ADYGEA, RUSSIA) K.K. Tarasenko	184
TO BE OR NOT TO BE (HEAVIER) – PRELIMINARY DELIBERATIONS ON THE FUNCTION OF THE THICK DERMAL SKELETON OF METOPOSAURUS E.M. Teschner and D. Konietzko-Meier	185
CHOOSING THE RIGHT METRIC: A COMPARISON OF MOLAR RELIEF ESTIMATES USED IN DENTAL TOPOGRAPHY G. Thiery, F. Guy and V. Lazzari	186
“RHABDODON-LAND”: NEW DISCOVERIES OF RHABDODON FROM THE CAMPANIAN OF THE NATIONAL NATURAL RESERVE OF SAINTE-VICTOIRE (SOUTHERN FRANCE) T. Tortosa and Y. Dutour	187
UPPER LUTETIAN-LOWER BARTONIAN FISH FROM THE TRANSYLVANIAN BASIN, ROMANIA. PRELIMINARY RESULTS N. Trif, V.A. Codrea and V. Arghiuş	188
A NEW MARINE SNAKE (PALAEOPHIIDAE) FROM THE EARLY PALEOGENE OF MOROCCO, A SIGNAL OF EARLY CENOZOIC DIVERSIFICATION C. van den Ende, E. Randle, A. Roberts and N. Longrich	189
THE LARGE MAMMALS ASSEMBLAGE FROM BUDA (EASTERN ROMANIA) AND ITS IMPLICATIONS ON PALAEOOLITHIC HUNTING BEHAVIOUR Ş. Vasile and V. Dumitraşcu	190
THE MICROVERTEBRATE FOSSIL ASSEMBLAGE FROM ABRI 122 MIDDLE PALAEOOLITHIC SITE IN THE VÂRGHIŞ GORGES (ROMANIA) Ş. Vasile, A. Petculescu, V. Dumitraşcu, M. Cosac, G. Murătoareanu, R. Alexandru and D. Vereş	191

VARIABILITY OF CERVICAL INTERVERTEBRAL SPACE, POSTURE AND RANGE OF MOTION: COMPARING SAUROPOD AND GIRAFFE ONTOGENY D. Vidal *, P. Mocho ,A. Parámo , J.L. Sanz and F. Ortega	192
THE REDISCOVERY OF THE ORCAU DINOSAUR: FOLLOWING THE STEPS OF WALTER GEORG KÜHNE IN THE TREMP BASIN (CATALONIA) B. Vila , A.G. Sellés and À. Galobart	193
NEW TITANOSAURIAN FINDINGS FROM HISTORICAL LOCALITIES OF THE TREMP BASIN (MAASTRICHTIAN, PYRENEES) B. Vila , A.G. Sellés , À. Galobart , J.I. Canudo , J. Marmi and R. Gaete	194
PRELIMINARY REPORT ON THE AMPHIBIANS AND REPTILES FROM THE LOWER PALAEOOLITHIC PALAEOANTHROPOLOGICAL SITE OF VISOGLIANO (NE ITALY) A. Villa , G. Boschian , C. Tozzi and M. Delfino	195
CONSERVATION-RESTORATION STRATEGIES IN HARD SEDIMENTS. THE CASE OF A BEAR MANDIBLE FROM THE MIDDLE PLEISTOCENE SITE POSTES CAVE, (EXTREMADURA, SPAIN) M. Villalba , M.C. Ortega , J.L. Arsuaga , H. Collado and J.R. Bello	196
AN ARBOREAL AVIFAUNA FROM THE EARLY–MIDDLE MIOCENE BOUNDARY OF EASTERN SIBERIA N.V. Volkova	197
NEW DATA ON THE TAXONOMIC DIVERSITY OF THE MAASTRICHTIAN MULTITUBERCULATE MAMMALS FROM TRANSYLVANIA BASED ON POSTCRANIAL ELEMENTS M. Vremir , J. Meng , Z. Csiki-Sava , S.L. Brusatte and M.A. Norell	198
GROWTH RATES AND AGE DISTRIBUTION OF DIFFERENT JURASSIC SAUROPOD TAXA- DORSAL RIB HISTOLOGY REVEALS LONGER GROWTH TIMES FOR MACRONARIANS THAN FOR DIPLODOCIDS K. Waskow and P.M. Sander	199
RAPID RADIATION OF LACERTID LIZARDS (SQUAMATA, SCINCOMORPHA) IN THE OLIGOCENE OF FRANCE L.C.M. Wencker , E. Tschopp , A. Villa , J.-C. Rage and M. Delfino	200
THE MOSAIC ACQUISITION OF MARINE ADAPTATIONS IN METRIORHYNCHOID CROCODYLOMORPHS, FURTHER EVIDENCE FROM A NEW LARGE-BODIED SPECIES FROM HUNGARY M.T. Young , A. Ósi , A. Galácz and M. Rabi	201
WHERE DO THALATTOSUCHIANS GO IN THE CROCODYLOMORPH TREE? INTRODUCING THE CROCSUPERMATRIX PROJECT M.T. Young , A.K. Hastings , M.B. Andrade , E. Wilberg , T.J. Smith , D. Foffa , M.M. Johnson , Y. Herrera and S.L. Brusatte	202
THE LATE TRIASSIC DINOSAUR LOCALITY FRICK – NEW SAURISCHIA M. Zahner and W. Brinkmann	203
NEOGENE EVOLUTION OF CONTINENTAL ASIAN WATERFOWL COMMUNITIES (AVES, ANATIDAE) N. Zelenkov	204

## RELATIVE SIZE VARIATIONS OF MICROTUS ARVALIS AND MICROTUS AGRESTIS AS CLIMATIC PROXY: THE CASE OF GROTTA FUMANE

E. Luzi<sup>1,2,\*</sup>, J.M. López-García<sup>1</sup> and M. Peresani<sup>2</sup>

<sup>1</sup>IPHES – Institut Català de Paleoecologia Humana i Evolució Social, Tarragona, Spain

<sup>2</sup>Dipartimento di Studi Umanistici, Sezione di Scienze Preistoriche e Antropologiche, Università di Ferrara, Ferrara, Italy

\*elisa.luzi@urv.cat

**Keywords:** *Common vole, Ficed vole, morphometrics, climate*

Fumane cave (350 m a.s.l.) is located in the Veneto Pre-Alps, north-eastern Italy. It presents one of the most important and well-dated Palaeolithic sequence of Late Pleistocene of the Italian Peninsula. Here we analysed the relative size variations of the first lower molar (m1) of *Microtus arvalis* and *Microtus agrestis* from Fumane cave during Marine Isotope Stages (MIS) 3-2, quantifying these variations with the  $L_{agr}/L_{arv}$  index,  $L_{agr}$  being the mean value of L (total length of m1) in *M. agrestis* and  $L_{arv}$  the mean value of L in *M. arvalis*.

We compared our results with previous studies of palaeoclimatic and palaeoenvironmental reconstructions based on small mammals, large mammals and birds to investigate the efficacy of the index as proxy for climatic oscillations through the sequence of the site. We observed that, while *Microtus arvalis* showed an increase in size during arid periods, *Microtus agrestis* became larger during humid pulses.

The  $L_{agr}/L_{arv}$  index proved to be an excellent indicator of the general level of humidity in the surrounding of Fumane cave (presence/absence of surface water resources, increase/decrease of open humid environment), although it is not directly correlated with the mean annual precipitation calculated for the site, but probably related with the annual distribution of rainfalls. Comparing the values of the  $L_{agr}/L_{arv}$  index of Fumane cave with those of other sites of the Italy, northern Spain, Croatia, Hungary and Belgium, we analysed the responses of the two species to the climatic oscillations of MIS 3-2 in different geographic and climatic areas.