

# Programme



# SYSTEMATICS

The Science that Underpins Biology

Museum of Natural History, University of Oxford

26-28 August 2015



# SUMMARY



*Oxford University Museum of Natural History*

## Wednesday, 26<sup>th</sup> August

**08:00** Registration opens

**09:30 – 10:30** Keynote speaker: Michael Donoghue. MNH Lecture Theatre.

**10:30 – 11:00** Coffee break

**11:00 – 13:00**

MNH Lecture Theatre. SYMPOSIUM: *The value of long term monitoring plots for plant systematics and ecology in the tropics*.

Pitt Rivers Lecture Theatre. Contributed talks.

**13:00 – 14:00** Lunch break

**14:00 – 15:30**

MNH Lecture Theatre. SYMPOSIUM: *The value of long term monitoring plots for plant systematics and ecology in the tropics* [cont.].

Pitt Rivers Lecture Theatre. Contributed talks.

MNH Annexe. Contributed talks.

**15:30 – 16:00** Coffee break

**16:00 – 17:00**

MNH Lecture Theatre. SYMPOSIUM: *The value of long term monitoring plots for plant systematics and ecology in the tropics* [cont.].

Pitt Rivers Lecture Theatre. Contributed talks.

MNH Annexe. Contributed talks.

**18:00** Drinks reception at Oxford Museum of Natural History.

## Thursday, 27<sup>th</sup> August

**09:30 – 10:30** Keynote speaker: Peter Holland. MNH Lecture Theatre.

**10:30 – 11:00** Coffee break

**11:00 – 13:00**

MNH Lecture Theatre. SYMPOSIUM: *Rooted in deep time. Palaeontological contributions to systematics*.

Pitt Rivers Lecture Theatre. Contributed talks.

MNH Annexe. Contributed talks.

**13:00 – 14:00** Lunch break



**14:00 – 15:30**

MNH Lecture Theatre. SYMPOSIUM: *Rooted in deep time. Palaeontological contributions to systematics* [cont.].

Pitt Rivers Lecture Theatre. Contributed talks.

MNH Annexe. Contributed talks.

**15:30 – 16:00** Coffee break

**16:00 – 17:00**

Main Lecture Theatre. SYMPOSIUM: *Rooted in deep time. Palaeontological contributions to systematics* [cont.].

Pitt Rivers Lecture Theatre. Contributed talks.

MNH Annexe. Contributed talks

**19:00** Drinks reception and banquet (20:00) at Christ Church College.

## **Friday, 28<sup>th</sup> August**

**09:00 – 10:30**

MNH Lecture Theatre. SYMPOSIUM: *Accelerating the pace of taxonomy*.

**09:30 – 10:30**

Pitt Rivers Lecture Theatre. Contributed talks.

**10:30 – 11:00** Coffee break

**11:00 – 13:00**

MNH Lecture Theatre. SYMPOSIUM: *Accelerating the pace of taxonomy* [cont.]

Pitt Rivers Lecture Theatre. Contributed talks.

**13:00 – 14:00** Lunch break

**14:00 – 15:30**

MNH Lecture Theatre. SYMPOSIUM: *Comparative approaches to the origin of biodiversity*.

Pitt Rivers Lecture Theatre. Contributed talks.

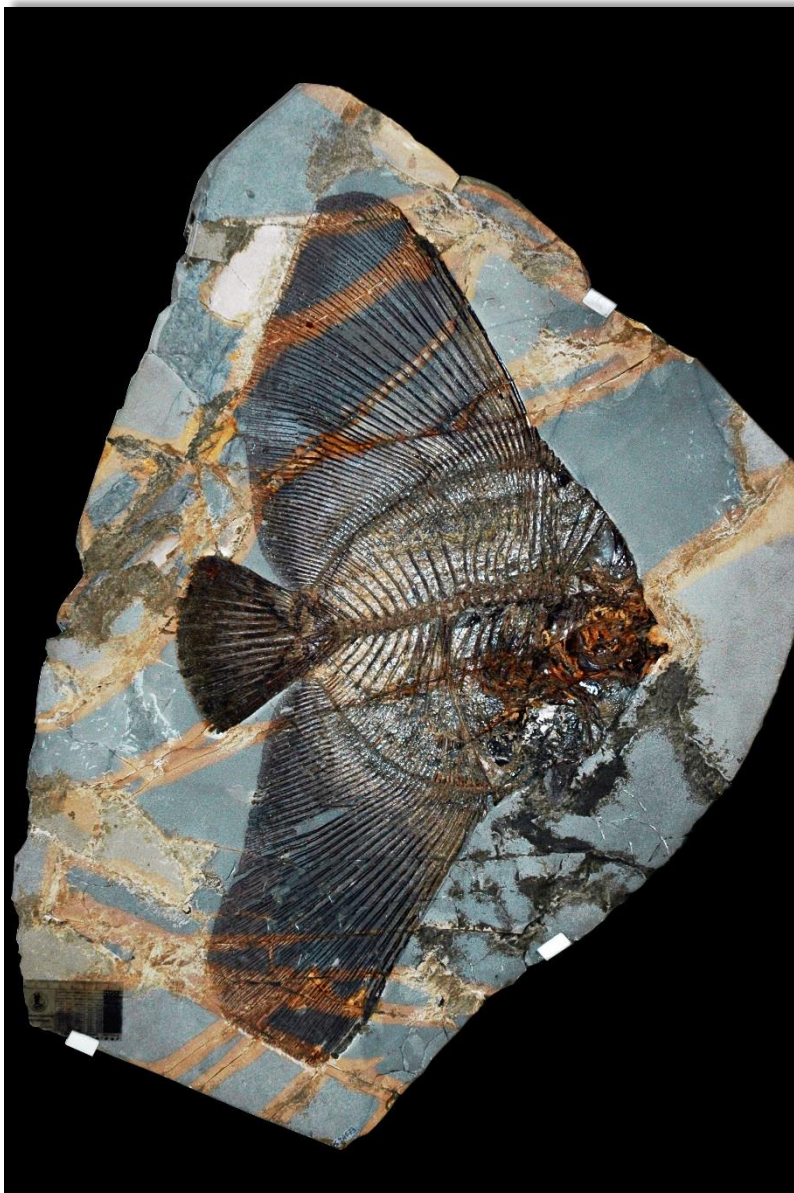
**15:30 – 16:00** Coffee break

**16:00 – 17:15**

MNH Lecture Theatre. SYMPOSIUM: *Comparative approaches to the origin of biodiversity* [cont.].

Pitt Rivers Lecture Theatre. Contributed talks.

# PROGRAMME



*M. Friedman / Museo Civico di Storia Naturale, Verona (Italy)*

Wednesday, 26<sup>th</sup> August

9:30-10:30

**MICHAEL DONOGHUE**

Yale University, USA

**Systematics does underpin biology! Examples from *Viburnum*, a clade of flowering plants**

10:30-11:00 — Coffee break

11:00-13:00

**MNH LECTURE THEATRE**

**SYMPOSIUM. THE VALUE OF LONG TERM MONITORING PLOTS FOR PLANT SYSTEMATICS AND ECOLOGY IN THE TROPICS.** R. TOBY PENNINGTON & TIM BAKER.

**All legumes are not equal: understanding legume dominance in tropical biomes**

Lehmann, C.E.R., A. Cabrelli, K. Dexter & R.T. Pennington.

**Integrating ecological traits in the analysis of diversification of tropical trees**

Baker, T., F. Coelho De Souza & R.T. Pennington.

**Phylogeny, functional traits and community assembly on a long term forest plot in Malaysian Borneo**

Kaye, M.E.

**Using RAINFOR forest plots for estimating phylogenetic diversity of Amazonian tree communities**

Honorio Coronado, E.N., K.G. Dexter, R.T. Pennington & RAINFOR Members.

**PITT RIVERS LECTURE THEATRE**

**Missing data and topology in Total Evidence method**

Guillerme, T.

**The construction and delimitation of morphological characters**

Rauhut, O.W.M.

**The distribution of convergences on phylogenetic trees**

Hughes, M.

**4BaSAI – First insights on a new supertree method based on single quartet analyses and its performance with respect to different starting triplets**

Kück, P. & C. Groß

**Concatabominations: a priori identification of unstable taxa and ineffective overlap in phylogenetic and phylogenomic data.**

Wilkinson, M., K. Siu-Ting, W.A. Akanni, D. Pisani & C.J. Creevey

**Phylogenetic trees do not reliably predict feature diversity**

Scotland, R.W.

**13:00-14:00 — Lunch break**

**14:00-15:30**

**MNH LECTURE THEATRE**

**SYMPOSIUM. THE VALUE OF LONG TERM MONITORING PLOTS FOR PLANT SYSTEMATICS AND ECOLOGY IN THE TROPICS [CONT.].** R. TOBY PENNINGTON & TIM BAKER.

**Using studies of phylogenetic diversity in tree plots across biomes to understand the general history of biome switching**

Dexter, K.G., T. Baker & R.T. Pennington.

**Tracking evolutionary diversity, phylogenetic structure, and species interactions across forest dynamics plots using plant DNA barcodes**

Kress, W.J.

**An Amazonian permanent plot network to quantify multi-trophic diversity across geographic and habitat gradients**

Fine, P.V.A., C. Baraloto, G.P.A. Lamarre, I. Mesones & K.G. Peay.

**PITT RIVERS LECTURE THEATRE**

**New inference tools for incorporating the effect of interspecific competition on trait evolution**

Drury, J., J. Clavel & H. Morlon.

**How should genes and taxa be sampled for phylogenomic analyses with missing data? An empirical study in iguanian lizards**

Jeffrey W. Streicher, J.A. Schulte II & J.J. Wiens.

**Morphological character analysis and the evolutionary change in development**

Assis, L.C.S.

**MNH ANNEXE**

**Phylogeny and evolutionary significance of Cambrian scalidophorans**

Ma, X.

**Reconstructing relationships of fossil jawless fish (Pteraspidoformes, Heterostraci)**

Randle, E. & R. Sansom.

**Fossils increase congruence between molecular and morphological hypotheses of spiny-rayed teleost (Acanthomorpha) phylogeny**

Davesne, D., C. Gallut, V. Barriel, G. Lecointre, P. Janvier & O. Otero.

**15:30-16:00 — Coffee break**

**16:00-17:00**

**MNH LECTURE THEATRE**

**SYMPOSIUM. *THE VALUE OF LONG TERM MONITORING PLOTS FOR PLANT SYSTEMATICS AND ECOLOGY IN THE TROPICS* [CONT.].** R. TOBY PENNINGTON & TIM BAKER.

**Maximising synergy between systematics and ecology in the tropics via long-term monitoring plots**

Pennington, R.T., T. Baker, E. Honorio Coronado & K. Dexter.

**FINAL DISCUSSION**

**PITT RIVERS LECTURE THEATRE**

**The origin of annelids: reconciling morphology, fossils and molecules**

Parry, L., G.D. Edgecombe & J. Vinther.

**A total-evidence approach to dating with fossils**

Klopfstein, S.

**Experimental analysis of decay biases in the fossil record**

Murdock, D.J.E., S.E. Gabbott & M.A. Purnell.

**MNH ANNEXE**

**Evolutionary relationships of the Haplosclerida from Irish and Mediterranean waters**

Longakit, M.B.A., J.M. Camacho Aguilar, M.V. Marra, O. Thomas, M. Aude & G. McCormack.

**Are data from 18 genes enough to resolve bark and ambrosia beetle phylogeny?**

Jordal, B.H., D. Pistone, S. Mugu & J. Gohli.

**Species discovery and integrative taxonomy in jellyfishes (Cnidaria, Discomedusae)**

Gómez Daglio, L. & M.N. Dawson.

**Water mite speciation in Madeira**

Valdecasas, A.G. & R. García-Jiménez.

**18:00 — Drinks reception at Oxford Museum of Natural History**



Thursday, 27<sup>th</sup> August

9:30-10:30

**PETER HOLLAND**

University of Oxford, UK

**From genomes to diversity: the prospects and problems of  
evo-devo in reverse**

10:30-11:00 — Coffee break

11:00-13:00

**MNH LECTURE THEATRE**

**SYMPOSIUM. ROOTED IN DEEP TIME: PALAEOLOGICAL CONTRIBUTIONS TO  
SYSTEMATICS.** ROGER BENSON, MATT FRIEDMAN & PAUL SMITH

**Before roots, shoots, and leaves: the early fossil record of plants on land**

Kenrick, P.

**The tale of mollusc evolution would be fiction if there were no fossils to tell the story**

Vinther, J.

**The impact of fossils on arthropod phylogeny**

Legg, D.A.

**Problems and progress in terrestrial arthropod phylogeny**

Garwood, R.J.

**Palaeontological insights into the assembly of the echinoderm body plan**

Rahman, I.A.

**PITT RIVERS LECTURE THEATRE**

**Visual opsin gene evolution and the origin and diversification of snakes**

Gower, D.J., B.F. Simões, F.L. Sampaio, N.S. Hart, D.M. Hunt & J.C. Partridge.

**Viviparity stimulates diversification in an order of fish**

Helmstetter, J.A., A.S.T. Papadopoulos, J. Igea, T.J.M. Van Dooren, A.M. Leroi & V. Savolainen.

**Floral symmetry shifted 203 times in angiosperms**

Reyes, E., H. Sauquet & S. Nadot.

**Segmental allopolyploid origin in *Medicago arborea* (Fabaceae) revealed through next-generation sequencing and allele phasing**

Eriksson, J.S.

**Niche and trait evolutionary rates are correlated during the Proteaceae radiation**

Onstein, R.E.

**3D models of ant domatia and phylogenetics reveal how morphological evolution drove the recurrent specialization and dissolution of association in ant/plant symbioses**

Chomicki, G. & S.S. Renner.

**Testing developmental biology predictions with fossils – phylogeny, dental complexity and evolutionary rates of the Multituberculata**

Corfe, I., L. Säilä & J. Jernvall.

**Integrating fossils into the coral phylogenetic puzzle**

Santodomingo, N., D. Huang, A. Budd & K. Johnson.

## MNH ANNEXE

**Integrated systematics finally gets a grip on a large genus – *Myrcia* (Myrtaceae)**

Lucas, E.

**Systematics of *Campylocentrum* (Angraecinae-Orchidaceae)**

Pessoa, E.

**The evolutionary history of *Cypella* (Iridaceae: Iridoideae) and allied genera: toward a taxonomic revision of Tigridieae based on leaf anatomy, floral morphology and molecular evidences**

Chauveau, O., T. Pastori, L. Eggers, J.E.A. Mariath & T.T. Souza-Chies.

**Rate heterogeneity and inconsistency of current models in molecular dating – the case of Annonaceae and Lentibulariaceae**

Chatrou, L.W. & M.D. Pirie.

**Phylogenetic backbone of Annonaceae (Magnoliidae) based on 29 whole-chloroplast sequences**

Carrive, L., T. Couvreur, S. Little & H. Sauquet.

**The evolutionary trends of genus *Hypochaeris* s.l. (lactuceae, asteraceae)**

Ortiz, M.Á., K. Tremetsberger, C.F. Ruas, E. Urtubey, P. López-Sepúlveda, T.F. Stuessy & S. Talavera.

**Accelerating integrative taxonomy in the genomics era: RADseq provides unprecedented species resolution in the genus *Lupinus* (Leguminosae)**

Atchison, G.W., E. Bridges, S. Orzell, L. Deflorin, N. Contreras, S. Madriñán & C.E. Hughes.

**13:00-14:00 — Lunch break**

**14:00-15:30**

## MNH LECTURE THEATRE

**SYMPOSIUM. ROOTED IN DEEP TIME: PALAEONTOLOGICAL CONTRIBUTIONS TO SYSTEMATICS [CONT.].** ROGER BENSON, MATT FRIEDMAN & PAUL SMITH.

**Neopterygii: the iceberg clade**

López-Arbarello, A.

**Fossils, ecomorphs, and the evolution of squamate reptiles**

Müller, J.

**The early evolution of Aves**

O'Connor, J. & J. Choiniere.

## PITT RIVERS LECTURE THEATRE

**The taxonomy of endangered, endemic radiations: keeping the tradition alive through local teams and advanced technology**

Attwood, S.W.

**Drawers full of old, undescribed wasps: integrating curation with taxonomy and ecology**

Broad, G.R.

**A complementary role for old and new collections in revealing unsuspected species diversity in an endemic gastropod (*Paramelania*) from lake Tanganyika**

Todd, J.A., J.D. Burgon & E. Michel.

**Combining morphology, molecules, and morphometrics: revising closely related species in the genus *Araniella* (Araneae: Araneidae)**

Spasojevic, T., C. Kropf, W. Nentwig & L. Lasut.

**Untangling the molecular phylogeny of tapeworms**

Waeschenbach, A., J.N. Caira, K. Jensen, J. Mariaux, B.B. Georgiev, T. Scholz, R. Kuchta, J. Brabec, V. Tkach, D.T.J. Littlewood & PBI Consortium.

**Evolution of convergent functional systems in a speciose clade of parasitic wasps (Ichneumonidae, Cryptinae)**

Santos, B.F.

## MNH ANNEXE

**Evolution of the leucobryoid morphology in Dicranidae (Bryophyta)**

Bonfim, M. & M. Stech.

**New ingredients for an old recipe: contribution of the Asian aubergines to a better understanding of the complex evolutionary history of Old World spiny solanums (subg. *Leptostemonum*)**

Aubriot, X.

**Genome skimming and phylogenomics of *Nicotiana* section *Suaveolentes* (Solanaceae)**

Dodsworth, S.

**Genetic patterns within the diploid-tetraploid *Arabidopsis arenosa* group**

Kolář, F., E. Závěská, G. Fuxová, L. Hyklová, M. Lučanová, A.J. Nagano, H. Kudoh, S. Španiel & K. Marhold.

**The recent discovery of four new, narrow endemic plant species within the well-studied *Plantago* genus shows the urgent need for taxonomic research in the Neotropics**

Hassemer, G., H.M. Meudt & N. Rønsted.

**Phylogenetic reassessment of subfamily Ajugoideae (Lamiaceae)**

Moon, H.-K. & S.-P. Hong.

**15:30-16:00 — Coffee break**

**16:00-17:00**

**MNH LECTURE THEATRE**

**SYMPOSIUM. ROOTED IN DEEP TIME: PALAEOLOGICAL CONTRIBUTIONS TO SYSTEMATICS [CONT.].** ROGER BENSON, MATT FRIEDMAN & PAUL SMITH.

**Delusions in deep time: Is an accurate phylogeny fact or fiction in palaeontology?**

Asher, R.

**Clade-wide shifts in macroevolutionary dynamics and the role of fossil data**

Slater, G.J.

**Fossil biases and phylogeny**

Sansom, R.S.

**PITT RIVERS LECTURE THEATRE**

**What limits the morphological disparity of clades?**

Oyston, J., M. Hughes, P. Wagner, S. Gerber & M. Wills.

**Homoplasy and clade support across higher taxa and through research time**

Mounce, R., G. Lloyd, M. Wilkinson & M. Wills.

**How big is a genus?**

Sigwart, J.D. K.D. Bennett, M. Sutton, A. Garbett & B. Picton.

**Aphyly and Highly Diverse Organisms**

Williams, D. & M. Ebach.

**MNH ANNEXE**

**Joining up for digitisation – a pilot project between Kew and the Natural History Museum London**

Phillips, S.W.

**Scholarly publishing becomes a part of the research process: Data publication and re-use in the Biodiversity Data Journal**

Penev, L., P. Stoev, T. Georgiev, J. Miller & V. Smith.

**19:00 — Drinks reception and conference banquet (20:00) at Christ Church College**



# Friday, 28<sup>th</sup> August

9:00-10:30

## MNH LECTURE THEATRE

### **SYMPOSIUM. ACCELERATING THE PACE OF TAXONOMY.**

ROBERT W. SCOTLAND & QUENTIN WHEELER.

#### **Widespread mistaken identity in tropical plant collections**

Goodwin, Z., D.J. Harris, D. Filer, J.R.I. Wood & R.W. Scotland.

#### **Accelerating the global systematic revision of scorpions: Improving accuracy and efficiency with integrative taxonomy, collaboration and cyberinfrastructure**

Prendini, L.

#### **The science of species and art of survival**

Wheeler, Q.

#### **A game of two halves? Taxonomy as a team sport.... take two.**

Knapp, S.

## PITT RIVERS LECTURE THEATRE

#### **Areas of endemism under the semantic conception paradigm**

Ung, V. & A. Grand.

#### **The Gulf of Gabès (southern Tunisia): Center of Mediterranean endemism or ecophenotypic variations in extreme conditions?**

Aissaoui, C., N. Puillandre, M. Oliverio & P. Bouchet.

#### **Why do different oceanic archipelagos harbour contrasting levels of species diversity?**

Jones, K., S. Pérez-Espona, A. Reyes-Betancort, D. Pattinson, Juli Caujapé-Castells, S. Hiscock & M. Carine.

#### **Biogeography and the evolution of succulence in the Old World genus *Aloe* L. (*Xanthorrhoeaceae*)**

Grace, O.M.

10:30-11:00 — Coffee break

11:00-13:00

## MNH LECTURE THEATRE

### **SYMPOSIUM. ACCELERATING THE PACE OF TAXONOMY [CONT.].**

ROBERT W. SCOTLAND & QUENTIN WHEELER.

#### **Taxonomy on the fast track. Towards more sustainability in biodiversity research**

Balke, M., T. von Rintelen & A. Riedel.

#### **Accelerating the pace of taxonomy**

Scotland, R.W. & J.R.I. Wood.

#### **Searching for the silver bullet**

Harris, D.

**Developing a workflow for accelerating cumulative taxon descriptions, from fieldwork to publication.**

Polaszek, A., L. Penev & S. Schmidt.

**Nothing in taxonomy makes sense except in the light of Open Access**

Agosti, D.

**Mowing the lawn during an identity crisis: do well known groups need taxonomists?**

Vorontsova, M.S.

#### **PITT RIVERS LECTURE THEATRE**

**No ecological opportunity on a continental scale? Diversification and life-history evolution of African true toads (Anura: Bufonidae)**

Liedtke, H.C.

**Long-term decline in dinosaur speciation rates**

Sakamoto, M., M. Benton & C. Venditti.

**Testing for convergent evolution and adaptive radiations: the austral danthonioid grass radiations**

Linder, H.P. & Y. Bouchenak-Khelladi.

**Cryptic morphological characters and how they are changing the way we interpret plant taxonomy and evolution**

Vasconcelos, T.N.C., E.J. Lucas & G. Prenner.

**The effects of pollination and range shifts on the diversification of the tribe Antirrhineae**

Ogutcen, E., J. Theriault, D.B. King & J.C. Vamosi.

**Chameleons through time and space: extinction or adaptation?**

Tolley, K.A.

**Macroevolution of giant water scavenger beetles in the Cretaceous and Cenozoic**

Toussaint, E.F.A.

**The key role of systematics in conservation assessments of butterflies**

Huertas, B.

**13:00-14:00 — Lunch break**

**14:00-15:30**

#### **MNH LECTURE THEATRE**

**SYMPOSIUM. COMPARATIVE APPROACHES TO THE ORIGIN OF BIODIVERSITY.**

COLIN E. HUGHES & MATT FRIEDMAN.

**Competition and dispersal in clade diversification dynamics**

Purvis, A. S. Echevarría-Londoño & T.H.G. Ezard.

**New phylogenetic comparative methods and their application to our understanding of phenotypic evolution and diversification**

Morlon, H.

**Inferring island biogeography from phylogenetic data**

Etienne, R.

**Ecological release, perenniality and evolutionary plant radiations on island systems**

Atchinson, G., N.M. Nürk & C.E. Hughes.

**Scales of phenotypic diversification: exploring unconventional radiations in fishes**

Friedman, M., J.T. Clarke & R.C. Harrington.

**PITT RIVERS LECTURE THEATRE**

**Are coral reefs driving rates of diversification in jacks and allies (Carangoidei)?**

Santini, F.

**The shell beds of Lake Tanganyika: palaeoecology, patchy ecosystems and divergence in a rift lake**

Michel, E., J.A. Todd, J. Tarrant & M.J. Soreghan.

**A preliminary phylogeny for Upper Guinean angiosperms**

Marshall, C.A.M.

**Cave floras in SWChina: unexplored marginal biomes rich in diversity and undervalued for conservation**

Monro, A., W. Yigang, F. Longfei & N. Bystrakova.

**DNA barcoding and community structure assessment of a mixed dipterocarp forest in Brunei Darussalam**

Heckenhauer, J., M. Barfuss, K. Abu Salim, O. Paun, M. Chase, T. Pennington & R. Samuel.

**Edaphic determinism on tree community assemblages at a landscape scale in the tropical forests of South Cameroon**

Vleminckx, J.

**15:30-16:00 — Coffee break**

**16:00-17:15**

**MNH LECTURE THEATRE**

**SYMPOSIUM. COMPARATIVE APPROACHES TO THE ORIGIN OF BIODIVERSITY [CONT.].**

COLIN E. HUGHES & MATT FRIEDMAN.

**Did predation shape fish? Disentangling the complex drivers of fish body form diversity**

Price, S.A.

**Phylogenetic rates, adaptive evolution and evolutionary trends**

Venditti, C.

**Macroevolutionary divergence of bird bills**

Thomas, G.H.

**Extraordinary rates of evolution are common**

Pagel, M.

**PITT RIVERS LECTURE THEATRE**

**From medicinal use to phylogenetic prediction in drug discovery in the genus *Euphorbia* L.: classification of medicinal uses have major influence on data interpretation**

Ernst, M., C.H. Saslis-Lagoudakis, O.M. Grace, N. Nilsson, H. Toft Simonsen, J.W. Horn & N. Rønsted.

**The quest for Cinchona – a phylogenetic tale**

Rønsted, N. C. Maldonado, C. Cornett, S.H. Hansen, C. Persson & A. Antonelli.

**Traits involved in human selection of useful South American palms**

Cámara-Leret, R., S. Fuarby, M.J. Macía, H. Balslev, B. Gödel, W.D. Kissling, N. Paniagua-Zambrana, N. Rønsted, J.-C. Svenning & C.H. Saslis-Lagoudakis.

**Neotropikey – identification resources**

Klitgaard, B., N. Biggs, J. Bishop, S. Edwards, S. Frisby, A. Haigh / W. Milliken.