5th Congress

ITALIAN SOCIETY FOR EVOLUTIONARY BIOLOGY

Trento, 28-31 August 2013

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EDITED BY LINO OMETTO AND OMAR ROTA-STABELLI

V congress of the Italian Society for Evolutionary Biology. Trento, 28-31 August 2013

between populations given the Ne values calculated from the within-population LD data and a matrix of between-populations FST. These routines have been designed to human populations, but they can easily be adapted to other species whenever genetic map positions are available. The functions contained in the R package NeON aimed to shed light on effective population size of human chromosomes from LD patterns of genome-wide SNPs data, describe demography and estimate the time of divergence between popualtions. The NeON package enables to accommodate variable numbers of individuals, populations and genetic markers, allowing to analyze them using standard personal computers. The performance of this package was tested estimating the demography and the time of divergence between all the populations of the POPRES database, which includes nearly 6,000 subjects, and over 500,000 single-nucleotide polymorphisms.

Is *Megachirella wachtleri* (Reptilia, Diapsida) a squamate?

Massimo Bernardi[1], Silvio Renesto[2]

[1]*MuSe - Museo delle Scienze, Corso del Lavoro e della Scienza 3, 38123 Trento, Italy.*
[2]*Dipartimento di Scienze Teoriche e Applicate, Università degli Studi dell'Insubria, Via Dunant 3, I 21100 Varese, Italy.*
Contact: massimo.bernardi@muse.it

Megachirella wachtleri Renesto et Posenato, 2003, a well preserved partial reptile skeleton from the Middle Triassic of the Dolomites (N Italy) was originally considered a lepidosauromorph, but no phylogenetic analysis was carried out. Consequently, the taxon was overlooked in subsequent later phylogenetic analyses of the Diapsida. The holotype and only known specimen of *Megachirella wachtleri* was recently redescribed (Renesto and Bernardi, 2013), allowing an investigation of its phylogenetic relationships. Phylogenetic analyses confirm that *Megachirella* is a lepidosauromorph close to the crown group lepidosaurs (Squamata+Rhynchocephalia). *Megachirella* enhances our knowledge on the series of morphological modifications that led to the origin of the Lepidosauria, the most diverse clade of extant reptiles, but highlights the problem of taxon sampling in phylogenetic analysis of basal lepidosauromorphs.

The exemplar co-radiation of insects and plants: phylogenomic perspectives, paleo-ecological implications, agricultural applications

Omar Rota Stabelli[1]
[1]*Research and Innovation Centre, Fondazione Edmund Mach, Via Mach 1, 38010 San Michele all'Adige (TN), Italy.*
Contact: omar.rota@fmach.it

Insects are the most numerous and specious animals on earth, and played a key role in structuring most past and Present ecological niches, including the higly anthropized agricultural ones. Here I outline some of the results of a Marie Curie project aimed at investigating how insects and other ecdysozoans evolved during earth history, adapted to key paleo-ecological events and to agricultural niches, and evolved in relation to plants. The most interesting result is about the colonisation of land by arthropods (Rota Stabelli et al. 2013 Current Biology) which happen, according to molecules, toward the end of the Cambrian, much before fossils suggests and in a period that has been always considered incompatible with life, but that recent findigs make plausible.

Intraspecific variability of *Ginkgo biloba* leaves: implications for assessing ginkgophyte diversity in the fossil record

Kathleen Bauer[1,2], Evelyn Kustatscher[1,2], Michael Krings[2]
[1]*Bindergasse 1, 39100 Bolzano/Bozen, Italy;*
[2]*Department für Geo- und Umweltwissenschaften, Paläontologie und Geobiologie, Ludwig-Maximilians-Universität, and Bayerische Staatssammlung für Paläontologie und Geologie, Richard-Wagner-Straße 10, 80333 München, Germany.*
Contact: Kathleen.Bauer@naturmuseum.it

The ginkgophytes are a group of gymnosperms that originated in the late Palaeozoic. The group radiated greatly during the Mesozoic, but today is represented by only a single species, *Ginkgo biloba*. *Ginkgo biloba* is characterized by considerable intraspecific variability with regard to leaf size, basal angle and dissection depth – parameters that can also