



ENCONTRO NACIONAL DE BIOLOGIA EVOLUTIVA

19-20 Dezembro 2024, Vila do Conde

19 – 20 December 2024
BIOPOLIS | Vila do Conde, Portugal

ABSTRACT BOOK



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Sponsors



Short Programme

Centro Municipal da Juventude, Vila do Conde [\[Directions\]](#)

DAY 1: 19th December 2024

- | | |
|-------------------------------------------------|-----------------------------------------------|
| | 9:00: Plenary Talk Margarida Moreira |
| | 9:40: Talks 15 to 20 |
| | 10:52: Coffee Break & Posters |
| 11:00: Registration and Poster placement | 11:22: Talks 21 to 26 |
| | 12:35: Group Photo |
| | 12:40: Lunch Break |
| 13:30: Opening Ceremony | |
| 14:00: Plenary Talk José Cerca | 14:00: Plenary Talk Rebecca Mead |
| 14:40: Talks 1 to 7 | 14:40: Talks 27 to 34 |
| 16:04: Coffee Break & Posters | 16:16: Coffee Break |
| 16:34: Plenary Talk Allowen Evin | 16:45: Poster Session |
| 17:14: Talks 8 to 14 | 17:45: Closing Ceremony |
| 18:38: Homage to Prof. Amorim | 18:00: General Assembly of APBE |
| 19:15: End of first day | |

DAY 2: 20th December 2024

Detailed Programme

Centro Municipal da Juventude, Vila do Conde [\[Directions\]](#)

DAY 1: 19th December 2024

11:00: Registration and Poster placement

13:30: Opening Ceremony

14:00: Plenary Talk | José Cerca | Adaptive radiation on Oceanic Islands; Tales of ecological niches and ecological generalists)

14:40: Talk 1 | Bárbara Freitas | Does song act as a behavioural barrier to gene flow? Evidence from divergent populations of La Palma's Canary Islands Chaffinch

14:52: Talk 2 | Lara Almeida | Evolutionary history of the *Mus musculus* in Cabo Verde

15:04: Talk 3 | Maria Romeiras | Patterns of diversification and colonization in Macaronesian Apiaceae lineages

15:16: Talk 4 | Estêvão Faustino | Hybridization between currently allopatric species at the root of speciation? The case of Iberian chubs (Genus *Squalius*)

15:28: Talk 5 | Tristan Bertrand | Comparative Population Genomics Illuminates Species Boundaries and Symbiotic Disruption in *Eunicella Octocorals*

15:40: Talk 6 | Salomé Barreto | Ecological differentiation influences the evolution of pre-zygotic isolation in spider-mite species

15:52: Talk 7 | Ivo Chelo | Can reproductive isolation arise from epistatic deleterious and compensatory mutations in small populations: an experimental test with *C. elegans*

16:04: Coffee Break & Posters

16:34: Plenary Talk | Allowen Evin | 8,000 years of domestic plants and animals evolution : understanding local adaptation under socio-economic and climatic fluctuations

17:14: Talk 8 | Pedro Sousa | Understanding hybridization between alpine hares in a context of climate-induced range shifts

17:26: Talk 9 | Carlos Yadro | Population structure and environmental adaptation in two honey bee subspecies from southern European refugia: *A. M. ligustica* and *A. M. iberiensis*

17:38: Talk 10 | José Costa | Genetic divergence and local adaptations in endemic hares: Insights from the Italian and Broom hares

- 17:50: Talk 11 | Dora Henriques | population structure and conservation status of middle eastern honey bee subspecies
- 18:02: Talk 12 | Matthew Moreira | Distribution of intraspecific diversity across species ranges: insights from herptiles in six global regions
- 18:14: Talk 13 | Susana Almeida | Phylo-transcriptomics of the giant kelp *Macrocystis pyrifera* reveals multiple trans-oceanic dispersal events across the Southern Ocean
- 18:26: Talk 14 | Maria Carolina Matos | FCRL ancestry: can we truly find parallels between placental mammals, marsupials and monotremes?
- 18:38: Homage to Prof. Amorim | **Sandra Martins | New paralogs of ataxin-3 identified in primates and the constraint evolution of ATXN3L retrocopy**
- 19:00: Homage to Prof. Amorim | **Maria João Prata | António Amorim: a singular professor**
- 19:15: End of first day

DAY 2: 20 December 2024

- 9:00: Plenary Talk | **Margarida Cardoso Moreira | Origins of cells and organs – the view from the placenta**
- 9:40: Talk 15 | Inês Miranda | The origin and maintenance of adaptive seasonal camouflage in the least weasel
- 9:52: Talk 16 | Diogo Berjano | How do biochemical and environmental factors shape the fitness landscape of synonymous mutations on Hsp90?
- 10:04: Talk 17 | Joel Laia | Monoterpene synthase ligand preference: a case of both divergent and convergent evolution in Menthinae, Lamiaceae
- 10:16: Talk 18 | Beatriz Sousa | Evolutionary and functional study of the thyroid Sodium/Iodide Symporter homologs in plants
- 10:28: Talk 19 | Ana Serra Silva | Very Weak Support for Deuterostome Monophyly is Boosted by Long Branch Attraction Artefacts
- 10:40: Talk 20 | Bruno Nevado | Phylogenomics of *Lupinus* reveals strong geographic structuring and multiple instances of phenotypic convergent evolution
- 10:52: Coffee Break & Poster Session
- 11:22: Talk 21 | Sandra Estela Moreno Fernández | Lineage diversification of Acrocephalidae family (Reed Warblers) and its relationship with migratory behaviour and islands colonisation
- 11:34: Talk 22 | Carolina Peralta | Characterization of polymorphic inversions in locally adapted populations of *Clunio marinus*

11:46: Talk 23 | Carla Gonçalves | A turbulent evolutionary history involving massive gene gains and losses has shaped the genome and metabolism of a fungal lineage

11:58: Talk 24 | Mario Torralba Sáez | A shark's eye view on genome size evolution: phylogenetic patterns, molecular causes, and phenotypic consequences

12:10: Talk 25 | Daniel García Souto | Phenotypic and genetic differentiation between two chromosomal taxa of the gastropod *Nucella lapillus* at Galician rocky shores (NW Spain)

12:22: Talk 26 | Catarina Branco | Identifying the sex chromosomes of *Laurus azorica*

12:35: Group Photo

12:40: Lunch Break

14:00: Plenary Talk | Rebecca Mead | The Sandwalk: Time for Thinking about Evolution Education

14:40: Talk 27 | Xana Sá-Pinto | Stronger together: a revision of stakeholder impact of NEDE.APBE's 12 years of education and outreach in evolution

14:52: Talk 28 | Javier Oñate Casado | When individuality obscures geographic song variation: a comparison of two passerine sister species with different migratory strategies

15:04: Talk 29 | Gabriel Munar Delgado | Popular birds live longer: The association of social bonds and survival in a social bird

15:16: Talk 30 | Miguel Cruz | A genetic trade-off between intrinsic growth and sensitivity to competition, but not with reproductive interference, in spider mites

15:28: Talk 31 | Clara Pidner | Is the devil in the details? Investigating the role of the body spot in male-female interactions of the fish *Poecilia vivipara*'s

15:40: Talk 32 | Rita Melo-Miranda | The role of exercise in mitigating inflammaging and gut dysbiosis

15:52: Talk 33 | Ana Sousa | Aging drives gut bacteria toward pathoadaptation

16:04: Talk 34 | Lekshimi B Sreelatha | Environmental drivers of colouration in Lusitanian wall lizards: Testing key ecogeographical hypotheses

16:16: Coffee Break

16:45: Poster Session

17:45: Closing Ceremony

18:00: General Assembly of APBE

Talk 9

Population structure and environmental adaptation in two honey bee subspecies from southern European refugia: *A. M. ligustica* and *A. M. iberiensis*

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Population genetics; *Apis mellifera*; WGS; genotype-environment association; local adaptation

The Iberian and Italian peninsulas served as refugia to honey bees (*Apis mellifera*) during glacial periods and are home to two subspecies: *A. m. iberiensis* (M-lineage) and *A. m. ligustica* (C-lineage), respectively. Here, we analyzed 311 (86 *A. m. iberiensis*; 225 *A. m. ligustica*) whole genomes generated from drones (haploid males) to investigate population structure, genetic diversity, and the molecular basis of local adaptation in both subspecies. For *A. m. iberiensis*, Admixture analysis revealed a Northeastern-Southwestern cline between two genetic backgrounds and no introgression from other subspecies. For *A. m. ligustica*, geographically extended introgression from its neighbouring sister subspecies, *A. m. carnica*, was detected even in areas distant from their natural contact zone. Compared to *A. m. iberiensis*, *A. m. ligustica* showed lower levels of genetic diversity, as estimated by nucleotide diversity, expected heterozygosity, LD-based effective population size (N_e) and higher inbreeding. The analysis of recent historical N_e for *A. m. iberiensis* revealed a strong bottleneck between the 1940s and 1980s, after which a slight recovery occurred. In the case of *A. m. ligustica*, it always showed lower N_e than *A. m. iberiensis* and remained stable until the 1990s, when it experienced a massive drop that lasted until today. Selection signatures were detected and cross-validated using PCAdapt, SAMBADA, and RDA. SNPs with q-adjusted p-values < 0.05 detected by at least two selection methods were considered strong candidates. For *A. m. iberiensis*, we detected 279 SNPs, and these were mainly associated with Longitude, Precipitation Seasonality, Mean Temperature and Precipitation of the Driest Quarter. Among other functional annotations, a subset of candidate SNPs were annotated to genes involved in cold and heat response and cuticle assembly. For *A. m. ligustica*, we detected only 37 SNPs, and these were mainly associated with Latitude and Precipitation of the Warmest Quarter. A subset of these SNPs were also annotated to genes involved in heat and cold response. While we did not find overlapping SNPs between the two subspecies, we found 20 common genes. In addition to the aforementioned annotations, we also detected SNPs in genes associated with olfaction, ultraviolet and spectral perception and circadian clocks. Our findings will be discussed in light of modern apicultural practices. This project is part of the PRIMA programme supported by the European Union. This work was supported by national funds through FCT/MCTES (PIDDAC): CIMO, UIDB/00690/2020 (DOI: 10.54499/UIDB/00690/2020) and UIDP/00690/2020 (DOI: 10.54499/UIDP/00690/2020); and SusTEC, LA/P/0007/2020 (DOI: 10.54499/LA/P/0007/2020). National funding by FCT, Foundation for Science and Technology, through the individual research grant 2021.06948.BD of Carlos A. Yadró.