

Curriculum vitae

Personal Information

André Levy Martins Coelho

Post-doctoral researcher

Nationality: Portuguese

Date of Birth: May, 11th 1972

Eco-Ethology Research Unit / Unidade de Investigação em Eco-Etologia (ISPA-IU)

R. do Jardim do Tabaco, 34

1149-041 Lisbon PORTUGAL

Bioscience Center / Centro de Biociências

(same address)

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Research Interests

Phylogenetics
Phylogeography
Patterns of Diversity
Speciation
Bioinformatics
Molecular Evolution

Ecomorphology
Character evolution
Community genetics
Biotic interactions
Climate change

Human Behavior
Human Cultural Evolution
Human Domestications
History of Evolutionary Biology
Science Communication

My core interest is Evolutionary Biology. As an eminently historic science, I am interested in the relationship among taxa (phylogenetics) and geographic populations (phylogeography), and the role played by historic factors – such as climate change and plate tectonics – in determining geographic distributions and diversity patterns.

My use of molecular sequences as a source of historic information has prompted an interest into the use of the molecular clock, the ability to test part demographic and evolutionary models (coalescent theory) and the limits of the molecular phylogenetic signal (e.g., hard vs. soft polytomies).

I am interested in phylogenies as a means to address issues of systematics but also those of character evolution, including ecology, behavior and ecomorphology (in which geometric morphometrics plays a role).

I have worked with a variety of organisms (from insects to plants, terrestrial to marine), and am presently working with fish, particularly the perciform sub-order Blennioidea. I'm also interested in the ecology and evolution of species interactions (Community genetics) and how they condition character evolution and species distributions.

I also have an interest in evolution and human affairs, including the history of science (particularly evolutionary biology), the evolution of human behavior and culture, human domestications and evolution of fish stocks, Darwinian medicine, and the role of disease in human history.

Thus far I have not held a teaching position, but have taught courses whenever possible, and am particularly fond of communicating audiences to school and public audiences, through lectures, writing, videos and theater.

Degrees

Ph.D. at State University of New York at Stony Brook, Department of Ecology and Evolution, August 2004. Dissertation title: "The overcrowded stage and the evolutionary play: Resistance of *Brassica rapa* L. (Brassicaceae) to multiple enemies."

B. A., Univ. Lisbon, Portugal (1994) Major: Biology [Concluding year as ERASMUS fellow at Univ. Barcelona].

Grants and Research Support

2011-2014 – Project: «Consequences of past and present climatic changes on biodiversity patterns of peat-rich environments: from genes to communities» PTDC/AAC-AMB/111349/2009, Member.

2010/13 – Project: «Phylogeny, Biogeography and Character Evolution in Blennioidei and Gobiesocoidei» PTDC/MAR/101639/2008, Principal Investigator

2009/11 – Project: «Marine phylogeographic structuring during climate change: the signature of leading and rear edge of range shifting populations.» MARIN-ERA/MAR/0001/2008, participant.

2008- Postdoctoral scholarship from the Fundação para a Ciência e Tecnologia (Portugal) SFRH/BPD/41391/2007 Phylogenetics, Biogeography and the Evolution of Behavior and Morphology of Blennioidei

2004 - Postdoctoral scholarship from the Fundação para a Ciência e Tecnologia (Portugal) SFRH/BPD/18067/2004/D321

1997-2000 - PRAXIS XXI Doctoral grant, from National Council for Science and Technology (Portugal)

1996 - Fulbright Fellow

1994 – ERASMUS Program

Science Publications

Scientific Journals

- Geeta, R., L. M. Dávalos, A. Levy, L. Bohs, M. Lavin, K. Mummenhoff, N. Sinha and M. F. Wojciechowski. 2012. Keeping it simple: Flowering plants tend to retain, and revert to, simple leaves. *New Phytologist* 193: 481-493. doi: 10.1111/j.1469-8137.2011.03951.
- Levy, A. 2011. Evolution as a scientific fact. *AÇOREANA, Suplemento 7*: 361-368.
- Levy, A., Wirtz, P., Floeter, S. R., Almada, V. C. 2011. The Lusitania Province as a center of diversification: The phylogeny of the genus *Microlipophrys* (Pisces: Blenniidae). *Molecular Phylogenetics and Evolution* 58: 409–413.
- Levy, A. 2010. Pattern, process and the evolution of meaning: species and units of selection. *Theory in Biosciences*. 129: 159-166. DOI: 10.1007/s12064-010-0092-x – Impact Factor: 1.703 (2008).
- Almada, V. C. , Robalo, J.I., Levy, A., Freyhof, J., Bernardi, G, Doadrio, I. 2009. Phylogenetic analysis of Peri-Mediterranean blennies of the genus *Salaria*: Molecular insights on the colonization of freshwaters. *Molecular Phylogenetics and Evolution* 52: 424–431. – Impact factor: 3.99 (2008)
- Levy, A., I. Doadrio, V.C. Almada. 2009. Historical biogeography of European leuciscins (Cyprinidae): evaluating the Lago Mare dispersal hypothesis. *Journal of Biogeography* 36:55-65.
- Francisco, S.M., Congiu, L., Stefanni, S., Castilho, R., Brito, R., Ivanova, P.P., Levy, A., Cabral, H., Kiliyas, G., Doadrio, I. & Almada, V.C. 2008. Phylogenetic relationships of the North-eastern Atlantic and Mediterranean forms of *Atherina* (Pisces, Atherinidae). *Molecular Phylogenetics and Evolution* 48: 782-788.
- Almada, F., Henriques, M., Levy, A., Pereira, A., Robalo, J. & Almada, V.C. 2008. Reclassification of *Lepadogaster candollei* based on molecular and meristic evidence with a redefinition of the genus *Lepadogaster*. *Molecular Phylogenetics and Evolution*. 46: 1151-1156.
- Almada, V.C., Pereira, A.M., Fonseca, J.P., Levy, A., Maia, C., Valente, A. 2008. Mitochondrial DNA fails to reveal genetic structure in sea-lampreys along European shores. *Molecular Phylogenetics and Evolution* 46:391-396.
- Robalo, J.I., V.C. Almada, A. Levy, I. Doadrio. 2007. Re-examination and phylogeny of the genus *Chondrostoma* based on mitochondrial and nuclear data and the definition of 5 new genera. *Molecular Phylogenetics and Evolution*. 42: 362–372.
- Robalo, J.I., C. Sousa-Santos, A. Levy & V.C. Almada. 2006. Molecular insights on the taxonomic position of the paternal ancestor of the *Squalius alburnoides* hybridogenetic complex. *Molecular Phylogenetics and Evolution* 39(1): 276-281
- Gassmann, A. J., A. Levy, T. Tran, and D. J. Futuyma. 2006. Adaptations of an insect to a novel host plant: a phylogenetic approach. *Functional Ecology* 20:478-485.
- Levy, A. 2004. The Overcrowded Stage and the Evolutionary Play: Resistance of *Brassica rapa* L. (Brassicaceae) to Multiple Enemies. PhD Dissertation in Ecology and Evolution. Stony Brook University, New York, USA.
- Geeta R, Levy A., Hoch JM, and M. Mark. 2004. Taxonomists and the CBD. *Science* 305 (5687): 1105-1105.
- Matos, M., C. Rego, A. Levy, H. Teotonio, and M.R. Rose. 2000. An evolutionary no man's land. *Trends in Ecology and Evolution* 15:206.

- Knowles, L.L., A. Levy, J.M. McNellis, K.P. Greene, and D.J. Futuyma. 1999. Tests of inbreeding effects on host-shift potential in the phytophagous beetle *Ophraella communa*. *Evolution* 53:561-567.

Book Editor

- Levy, A., Carrapiço, F, Abreu, H., Pina, M. 2011. *Vida: Origem e Evolução*. Esfera do Caos, Lisboa, Portugal.

- Levy, A., Carrapiço, F, Abreu, H., Pina, M. 2009. *Evolução: Conceitos e Debates*. Esfera do Caos, Lisboa, Portugal.

- Levy, A., Carrapiço, F, Abreu, H., Pina, M. 2008. *Evolução: História e Argumentos*. Esfera do Caos, Lisboa, Portugal.

Contributions to Edited Books and Educational Materials

- Pigliucci, M and Levy, A. 2009. An Extended Evolutionary Synthesis. In *Evolução: Conceitos e Debates*. Edited by Levy, A., Carrapiço, F, Abreu, H., Pina, M. 2009. Esfera do Caos, Lisboa, Portugal.

- Almada, V. C., Robalo, J. I., Gonçalves, E. J., Levy, A. and Patzner, R. A. 2009. Blennies in Temperate Seas. In *The Biology of Blennies*. Patzner, R.A., Gonçalves, E. J., Hastings, P., and Kapoor, B.G. (Eds.). Science Publishers, Enfield, NH.

- Levy, A. 2008. *Evolução agora*. In *Evolução: História e Argumentos*. Edited by Levy, A., Carrapiço, F, Abreu, H., Pina, M. 2008. Esfera do Caos, Lisboa, Portugal.

- Vencl, F. V., Levy, A., Geeta, R., Keller, G. and Windsor, D. 2003. Observations on the Natural History, Systematics, and Phylogeny of the Criocerinae of Costa Rica and Panamá In *New Contributions to the Biology of the Chrysomelidae*, P. Jolivet, J. Santiago-Blay, and M. Schmitt, (eds.) SPB Academic Publishing. The Hague, The Netherlands.

- Levy, A. 2002. Genetics and Evolution. *Environmental Science on the Web: Interactive exercises for Environmental Science*, K. Root (ed.). Web School of Science.

- Levy, A. and J. Oomen. 2002. Interactions among Species. *Environmental Science on the Web: Interactive exercises for Environmental Science*, K. Root (ed.). Web School of Science.

- Futuyma, D.J. and A. Levy. 2000. Coevolution. In *Encyclopedia of Biodiversity*, Simon Levin (ed.). Academic Press.

General Journal/Magazines/Newspapers

- Levy, A. 2009. Darwin, a «Origem das Espécies» e Marxismo passados 150 anos. *Vértice (II Série)* Maio-Junho: 5-15.

Contributed Papers at Scientific Meetings

2011:

- « Marine Phylographic Structuring during Climate Change», André Levy, Joana I. Robalo, Sara Francisco, and Vitor C. Almada, Sept. 26-30th, World Conference on Marine Biodiversity, Aberdeen Scotland. [digital object]

- «A Província Lusitania: Filogenia e biogeografia histórica de dois géneros de blenídeos», Oct 13-16th , IV Congress of the Ordem dos Biólogos, Ponta Delgada. [oral presentation]

2009:

- «Evolution Now», March 18th, part of the Darwin commemorations at Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa. [oral presentation]
- «Species in the era of molecular phylogenetics & Units of selection as active agents», Abril 24th , part of the International Conference «Evolution: today and tomorrow - Darwin Evaluated by Contemporary Philosophical and Evolutionary Biological Theories», at Faculdade de Ciências da Universidade de Lisboa, promoted by the Philosophy of Science Research Center of the University of Lisbon. [oral presentation]
- «Evolutionary Psychology and the Evolution of Human Psychology», May 22nd, in the Symposium «Frontiers of the Human», promoted by UIEE/ISPA. [oral presentation]
- «Evolution as a fact», in a round-table entitled «Evolution is fundamental. Why is it so controversial?», September 21st , as part of the conference «Darwin's Mistake and what we are doing to correct it.», at the Universidade dos Açores. [oral presentation]
- «Os borseiros de investigação científica», October 30th, part of the “Biology and Education” panel of the I Congress of the Order of Biologists in Azores, in Pico. [oral presentation]
- «Darwinism and Evolutionism», December 3rd , at the International meeting “Horizons of the Human”, organized by the Instituto de Sociologia da Faculdade de Letras da Fundação Universidade do Porto. [oral presentation]

2007 - Historical Biogeography of Leuciscins (Cyprinidae): testing Lago-Mare dispersal. III Encontro Nacional de Biologia Evolutiva, IGC, Oeiras, Portugal. [oral presentation]

2006 - Historical Biogeography of Leuciscins (Cyprinidae) phylogenetic and diversity patterns reject Lago-Mare dispersal. Society for the Study of Evolution, Stony Brook, USA. [poster presentation]

2005 - Ripe for picking: Hard or soft polytomy of European Chondrostoma (Cyprinidae). 10th Congress of the European Society for Evolutionary Biology, Kraków, Poland. [poster presentation]

2004 - Anthocyanins and Plant Defense in Brassica rapa. Society for the Study of Evolution, Fort Collins, USA. [oral presentation]

2003 - Where do most taxonomists work, and does it matter. Annual AIBS conference on "Bioethics in a changing world," Washington, D. C., USA. [poster presentation]

2002 - Anthocyanins and Plant Defense in Brassica rapa. American Society of Naturalists, Banff, Canada. [poster presentation]

2002 - Pupal color polymorphism in Pieris rapae. Annual retreat of the Department of Ecology and Evolution. SUNY at Stony Brook. [oral presentation]

2000 - Leaf polymorphism in *Sassafras albidum*. Annual retreat of the Department of Ecology and Evolution. SUNY at Stony Brook. [oral presentation]

1999 - Correlation between resistance and tolerance. A preliminary study of defense in Rapid Cycling Brassica rapa. European Society of Evolutionary Biology, Barcelona, Spain. [poster presentation]

1998 - Inbreeding effects on host shift potential in the phytophagous beetle *Ophraella*. Society for the Study of Evolution, Vancouver, Canada. [poster presentation]

1997 - Inbreeding effects on host shift potential in the phytophagous beetle *Ophraella*. Annual retreat of the Department of Ecology and Evolution. SUNY at Stony Brook. [oral presentation]

Invited Speaker

2010:

- «The Azores and its role in the evolution of marine fishes», August 3rd, Graciosa Island, Azores, Portugal.
- «Biodiversity and Extinction», June 9th, at Universidade Lusófona, organized by Bio Conselho de Estudantes da Lusófona.

2009:

- «Darwin and Human Evolution», December 3rd, at the “Human Horizons” meeting in the Porto University.
- «Evolutionary Biology: the continuum among the sciences and the limits of Science”, April 2nd, part of the Permanent Seminar of the Philosophy of Science Research Center of the University of Lisbon.
- «”The expression of Emotions in Man and Animals” by Charles Darwin», April 30th a 30 de April, promoted by UIEE/ISPA.
- «Evolution in debate: From Darwin to actuality», Maio 13th, at Universidade Lusófona, organized by Bio Conselho de Estudantes da Lusófona.
- «Evolução Now», November 24th, as part of the commemoration of the 150th anniversary of “Origem of Species” and the National Day of Science Outreach, at ISPA.

2005 – “Evolution of Resistance in Brassica rapa” Estación Biológica de Donaña, Sevilla, Spain.

Organization of Scientific Events

21011 – Co-organizer of the International Workshop on the Biogeography and Phylogeography of Atlantic Fish, 26-27 Nov. 2011, Lisbon.

2009:

- Co-organizer of the International Conference «Evolution: today and tomorrow - Darwin Evaluated by Contemporary Philosophical and Evolutionary Biological Theories», April 23-24th, at Faculdade de Ciências da Universidade de Lisboa, promoted by the Philosophy of Science Research Center of the University of Lisbon.
- Coordinator of the Organization of the Symposium «Frontiers of the Human», May 22nd, promoted by UIEE/ISPA.
- Co-organizer of “Frontiers of Evolution”, November 24th, and open-house at ISPA for High School students and teachers.
- Coordinator of the Organization of the V National Meeting of Evolutionary Biology, December 21st promoted by UIEE/ISPA.

2008 :

- created website (<http://www.biologia-evolutiva.net/>) for exchange of information among Portuguese Evolutionary Biologists.

2005 :

- Coordinator of the Organization of the I National Meeting of Evolutionary Biology, December 22nd, promoted by Faculdade de Ciências de Lisboa.
- Moderator of the electronic list «Evolutionary Biology in Portugal»

Jury Member

2008 - “Inbreeding Depression in Adaptation to Domestication: analysis of fitness, behavior and life-history of *Drosophila subobscura*.”, Marta Alexandra Arandas dos Santos, Masters in Evolutionary Biology and Development; Opponent (arguente).

2007 –

- “Evolutionary Change during Adaptation to Domestication”, Inês Regina Lopes de Mendonça Fragata, Masters in Evolutionary Biology and Development, Universidade de Lisboa; Opponent (arguente).
- “Validation of the Model of Anxiety by Light/Dark Exploration Test in Wistar Rats”, Masters in Ethology, ISPA; jury member.

Teaching Experience

2011 - Teaching Assistant: «Developmental Biologia and Evolution / Biologia do Desenvolvimento e Evolução», ISPA-IU [Portuguese]

2007 - Lecturer: «Evolutionary Psychology and Sociobiology/Psicologia Evolutiva e Sociobiologia», Masters in Psychobiology, ISPA [Portuguese]

2005-06 – Lecturer: «Evolutionary Biology/Biologia Evolutiva», Masters in Ethology, ISPA [Portuguese]

2002 – Teaching Assistant: Graduate «Biometry», State Univ. of New York at Stony Brook [English]

2001 – Teaching Assistant: «Introductory Biology Lab and Lecture», State Univ. of New York at Stony Brook [English]

2000 – Teaching Assistant: «Entomology Lab», State Univ. of New York at Stony Brook [English]

2000 – Guest Lecturer: «Introductory Biology» (10 lectures on Evolution), State Univ. of New York at Stony Brook [English]

1996-97 – Teaching Assistant: «Introductory Biology Lab», State Univ. of New York at Stony Brook [English]

Workshops and Post-graduations (taught)

2012 – Workshop on the phylogenetic software Mesquite, January 17-26th, ISPA.

2009 – Workshop on the phylogenetic software Mesquite, June 25-26th, University of Algarve.

Workshops and Post-graduations (attended)

2008 - Writing Science for the Public. Oficina “Escrever, Escrever”, Lisbon, Portugal.

2008 - Beast Workshop. Univ. Algarve.

2005 - Mathematics of Evolution and Phylogeny. Institut Henri Poincaré, Paris, France.

2005 - Biodiversidade e Expressão Génica. Faculdade de Farmácia, Lisbon, Portugal.

2004 - The Quaternary Legacy: phylogeography and climatic changes in southern Europe (22-23 Oct), Lisbon, Portugal

Language Skills

Native speaker in Portuguese and English (4 years of Grade School and 8 years of Graduate School in the US)

Proficient in reading, writing and speaking in Castilian (Spanish).

Proficient in reading in French.

Computer Skills

Knowledge in programming with C++, Python and R.

Public Outreach / Science Communication

2012:

- «Evolution Today», St. Peter’s College, Palmela, Jan. 26th .

- «The evolution of the expressions of emotions», Escola Stuart Carvalhais, Massamá, Jan 10th .

2011:

- «Development and Evolution: the relationship between phenotype and genotype» and »Evolutionary Biology today: the advances of Darwin in the modern context» - lectures at Romeu Correia High School, Feijó, Jan 17th

- «Evolution Today», lecture at Rainha Dona Amélia High School, Lisbon, March 2nd.

- «Darwinian Medicine», Abril 4th, Escola José Cardoso Pires, Santo António dos Cavalheiros

- «Biodiversity and Extinctions», lecture and debate at the XIV Nation Meeting of Biology Students, Peniche, April 16th

- «Profession: Biologist» and «Evolution Now» - lectures at Josefa de Óbidos School, Óbidos, May 18th

- Dramatized tour as “Charles Darwin”, at the one year anniv. celebration of Centro Ciência Viva do Lousal, June 30th

2010:

- «Evolution in action», May 31st, Escola Secundária com 3º Ciclo Romeu Correia, Feijó.
- « Darwinian Medicine», 13th Abril & «Development and Evolution», 15th of April, at Escola Secundária de Carcavelos
- «Development and Evolution: relationship between phenotype and genotype», March 26th, at ISPA to school from Alentejo.
- «"Biodiversidade e extinção: passado e presente"», November 26th , in Colégio Santo André, during Science Week.

2009:

- Guided tours, as “Charles Darwin”, in the Botanical Gardens of Lisbon.
- Wrote a one-act play “The Birth of Evolution”, for the European initiative “Researcher's Night”
- Guided tours, as “Charles Darwin”, Visitas guiadas, at the National Museum of Natural History and its exhibit “Adventure on Earth”.
- Colaboration with the theater company «A Causa», in post-performance discussions, after the presentation of the monologue «The Monkey's Conference”, at Teatro da Trindade, Lisbon.
- «Evolutionary Biology», February 10th , invitation from the Municipal Library of Torres Vedras.
- Member of invited panelists in radio morning program of Antenna Um on Darwin and Evolution (12/Feb)
- Talk «Darwinism & Marxism», February 26th , promoted by the Portuguese Communist Party, Lisbon.
- Participation in the TV program «Portugal no Coração» (RTP) on Darwin and Evolution (4/Mar)
- «Darwin, Galapagos finches and evolution in action», March 16th , invitation from the Rainha Dona Leonor High School, Lisboa.
- «Darwin and Evolution», March 13th , invited by the Henrique Nogueira High School, Torres Vedras.
- Talk «Darwin and Evolution Today», March 23rd , promoted by the ART: Science Club of Telheiras, Lisbon.
- «Darwin and Evolution», May 28th , invited by D. Carlos I Junior School, Cacem.
- Talk «Charles R. Darwin», October 28th, invited by the Library of ISPA.
- Participation in the program «Biosfera» (RTP/TV) on Darwin and Evolution (Feb)
- Interview for RTP's Darwin blog on "How to teach Darwin to Children"
- Participation in the TV program «4 vezes Ciência» (RTP) on Education of Evolution

2008 – Talk on Evolution at Lourinhã High School

2002 – Presentation on Insects at Suffolk County Grade School

Other Activities

- Founding member of the Associação Portuguesa de Biologia Evolutiva.
- Member of the Society for the Study of Evolution
- Member of the Ordem de Biólogos.
- Member of the leadership of the Associação dos Bolseiros de Investigação Científica (ABIC), an organization that represents young Portuguese scientists on scholarship and promotes science jobs.
- Experience in written, consecutive and simultaneous translation English/Portuguese.
- Theater/Acting, with experience in plays in the US and Portugal, including the role of Charles Darwin in Timberlake Wertenbaker's «After Darwin», directed by Carlos António, for the Teatro da Politécnica in 2008, and in «Darwin in the Garden», a guided tour of the Lisbon's Botanical Gardens.