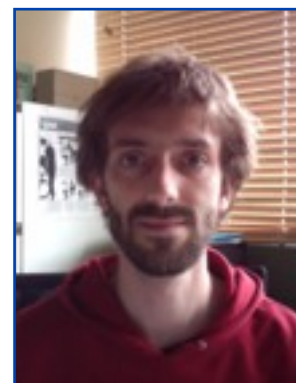


Curriculum vitae – Daniele Silvestro



Place and date of birth: Turin (Italy), September 28, 1984

E-mail: silvestro.daniele@gmail.com

Websites: <http://antonelli-lab.net/index.php>

Education

February 2012 **PhD in Natural Sciences** at the Senckenberg Research Institute and University of Frankfurt/M, Germany, with **summa com laude**. Supervisors: G. Zizka, K. Schulte.

July 2008 **MSc in Evolutionary Biology** at the University of Turin, Italy, with **summa cum laude, honorific mention, and press dignity**. Supervisor: M. Meregalli

July 2006 Bachelor's degree in Natural Sciences at the University of Turin, Italy, with **summa cum laude**. Supervisor: M. Meregalli

Professional experience

August 2013 – present Postdoc at the **University of Gothenburg, Sweden** (Antonelli Lab). Guest scientist at University of Lausanne (Computational Phylogenetics group, N. Salamin).

March 2012 – July 2013 Postdoc at the **Senckenberg Research Institute in Frankfurt, Germany**.

August – December 2012 Postdoc at the **University of Lausanne, Switzerland** and **Swiss Institute of Bioinformatics** (Computational Phylogenetics group, N. Salamin).

January 2011, May 2012 Guest researcher at Australian Tropical Herbarium, **James Cook University, Cairns, Australia** (K. Schulte, D. M. Crayn).

Peer reviewed publications ([Google scholar's list](#))

(underline indicates papers for which I am listed as corresponding author).

- 2014** SILVESTRO D.^{*}, Cascales-Miñana B.^{*}, Bacon C. D., Antonelli A. *Revisiting the origin and diversification of vascular plants through a comprehensive Bayesian analysis of the fossil record*. **New Phytologist**, accepted. ^{*}Equal contributions.
- SILVESTRO D., Salamin N., Schnitzler J. *PyRate: A new program to estimate speciation and extinction rates from incomplete fossil record*. **Methods in Ecology and Evolution**, 5:1126–1131
- Louzada R. B., Schulte K., Wanderley M. G. L., **SILVESTRO D.**, Zizka G., Barfuss M.H.J., Palma-Silva C. *Molecular phylogeny of Orthophytum (Bromeliaceae) elucidates infrageneric relationships and demonstrates the taxonomic significance of the inflorescence type*. **Molecular Phylogenetics and Evolution**, 77:54–64.
- Masters C. J., Génin F., **SILVESTRO D.**, Lister A. M., DelPero M. *The Red Island and the seven dwarfs: Body size reduction in Cheirogaleidae*. **Journal of Biogeography** [flagged: “Special paper”], 41:1833–1847.
- SILVESTRO D., Schnitzler J., Liow L.H., Antonelli A., Salamin N. *Bayesian estimation of speciation and extinction from incomplete fossil occurrence data*. **Systematic Biology**, 63:349–367
- Dib L., **SILVESTRO D.**, Salamin N. Evolutionary footprint of coevolving positions in genes. **Bioinformatics**, 30:1241–1249.
- SILVESTRO D., Zizka G., Schulte K. *Disentangling the effects of key innovations on the diversification of Bromelioideae (Bromeliaceae)*. **Evolution**, 68:163–175.
- 2013** Masters J.C., **SILVESTRO D.**, Génin F., DelPero M. *Seeing the Wood through the Trees: the Current State of Higher Systematics in the Strepsirhini*. **Folia Primatologica**, 84:201–219.
- Wagner N.^{*}, **SILVESTRO D.**^{*}, Brie D., Ibsch P. L., Zizka G., Weising K., Schulte K. *Spatiotemporal evolution of Fosterella (Bromeliaceae) in the Central Andean biodiversity hotspot*. **Journal of Biogeography**, 40:869–880. ^{*}Equal contributions.
- 2012** SILVESTRO D., Michalak I. *RaxmlGUI: A graphical front-end for RAxML*. **Organisms Diversity and Evolution**, 12:335–337.

2011 **SILVESTRO D.***, Schnitzler J.*, Zizka G. *A Bayesian framework to estimate diversification rates and their variation through time and space*. **BMC Evolutionary Biology**, 11:311. [Flagged “highly accessed”] *Equal contributions.

Picone B., Masters J., **SILVESTRO D.**, Sineo L., Del Pero M. *A Phylogenetic Analysis of Human Syntenies revealed by Chromosome Painting in Euarchontoglires Orders*. **Journal of Mammalian Evolution**, 18:131–146.

2010 Schulte K., **SILVESTRO D.**, Kiehlmann E., Vesely S., Novoa P., Zizka G. *Detection of recent hybridization between sympatric Chilean Puya species (Bromeliaceae) using AFLP markers and reconstruction of complex relationships*. **Molecular Phylogenetics and Evolution**, 57:1105–1119.

Tirelli T., **SILVESTRO D.**, Pessani D. and Tudge C. *Description of the male reproductive system of Paguristes eremita (Anomura, Diogenidae) and its placement in a phylogeny of diogenid species based on spermatozoal and spermatophore ultrastructure*. **Zoologischer Anzeiger**, 248:299–312

2008 Meregalli M. & **SILVESTRO D.** *Assessing relationships between Mediterranean and Afrotropical taxa of Cleonini (Coleoptera: Curculionidae: Lixinae): a survey based on Bayesian analysis and lineage geohistory reconstruction*. **Biogeographia**, vol. XXIX:117–132.

Tirelli T., Campantico E., Pessani D., **SILVESTRO D.** and Tudge C. *Reproductive biology of Mediterranean Hermit crabs: fine structure of spermatophores and spermatozoa of Diogenes pugilator (Decapoda: Anomura) and its bearing on a sperm phylogeny of the Diogenidae*. **Journal of Crustacean Biology**, 28:534–542.

Pre-prints and non peer-reviewed scientific contributions:

2014 Antonelli A., Condamine F. L., Hettling H., Nilsson K., Nilsson R. H., Oxelman B., Sanderson M. J., Sauquet H., Scharn R., **SILVESTRO D.**, Töpel M., Vos R. A. SUPERSMART: ecology and evolution in the era of big data. PeerJ PrePrints2:e501v1.

Töpel, M., Calió, M.F., Zizka, A., Scharn, R., **SILVESTRO D.**, Antonelli, A. SpeciesGeoCoder: Fast categorisation of species occurrences for analyses of biodiversity, biogeography, ecology and evolution. Biorxiv doi: 10.1101/009274

Papers in review

SILVESTRO D., Antonelli A., Salamin N., Quental T. B. The role of competition in evolutionary replacements of North American canids. In review.

SILVESTRO D., Kostikova A., Litsios G., Pearman P. B., Salamin N. Measurement errors should always be incorporated in phylogenetic comparative analysis. In review.

Kostikova A.*, **SILVESTRO D.***, Pearman P. B., Salamin N. Bridging inter- and intraspecific trait evolution with a hierarchical Bayesian approach. In review. *Equal contributions.

Serrano-Serrano M., Perret M., Guignard M., Chautems A., **SILVESTRO D.**, and Salamin N. Decoupled evolution of floral traits and climatic preferences in a clade of Neotropical Gesneriaceae. In review.

Antonelli A., Nilsson K., Töpel M., Oxelman B., Scharn R., **SILVESTRO D.**, R. Henrik Nilsson R. H., Sauquet H., Sanderson M. J., Vos R. SUPERSMART: Phylogenetics and Biogeography in the Era of Big Data. In review.

Invited talks

2014 *Rise and fall of canid clades inferred from the fossil record*

October 8, **University of Uppsala**, Sweden (Martin Ryberg).

Opportunities and challenges to estimating plant diversification from fossils

June 14, **University of Zurich**, Switzerland (Evolutionary Plant Radiations Meeting; C. Hughes, P. Linder).

Estimation of speciation and extinction from fossil data using PyRate

September 11, **University of Southampton**, UK (T. Ezard, T. B. Quental).

May 6, **University of Leipzig**, Germany (J. Schnitzler, A. Mulch).

April 8, **University of Sao Paulo**, Brazil (T. B. Quental).

Phylogenetic comparative methods without phylogeny (using the fossil record)

February 20, **University of Lyon, France** (N. Lartillot).

February 10, **University of Gothenburg**, Sweden (B. Oxelman).

2013 *Bayesian Inference of Speciation and Extinction Rates using the Fossil Record*

September 23, **University of California – Berkeley**, USA (H. Morlon, T. B. Quental, C. Marshall).

September 16, **University of Montreal**, Canada (Mathematics for an Evolving Biodiversity; N. Lartillot, A. Lambert).

September 4, **University of Stockholm**, Sweden (A. Humphreys, C. Rydin).

February 15, **Centre for Ecological and Evolutionary Synthesis – Oslo**, Norway (L. H. Liow, N. C. Stenseth).

2012 *Bayesian inference of macroevolutionary processes using the fossil record.*

October 22, **Collège de France – Paris**, France. (Phylogenetic approaches to diversification; A. Lambert, H. Morlon).

Key innovations in Bromeliads.

October 4, **Federal University of Pernambuco – Recife**, Brazil. (Forum of Ecology and Evolution; D. Astúa de Moraes).

Testing the effect of evolutionary key innovations using a Bayesian approach.

June 11, **University of Leipzig**, Germany. (Alexandra Muellner).

February 9, **Biodiversity and Climate Research Centre, Frankfurt**, Germany. (Steffen Paul).

2011 *Testing hypotheses on species diversification: A Bayesian framework.*

December 12, **University of Zurich**, Switzerland. (J. de Vos, C. Hughes, P. Linder).

December 7, **University of Gothenburg**, Sweden. (A. Antonelli).

Awards and grants

2012 (December) 1-year **postdoctoral grant** of the **Wenner-Gren Foundation, Sweden** for the period August 2013 to July 2014. Project title: “*Integrating Molecular and Fossil data to investigate patterns and dynamics of species diversification*”. Applicants: Alexandre Antonelli, Daniele Silvestro. Total amount: 34,100 €.

(December) “**Wolfgang Strutz**” **PhD thesis award** granted by the Senckenberg Nature Research Society, Germany. Awarded amount: 10,000 €.

(November) 2-year **postdoctoral grant** of the **Carl Tryggers Foundation, Sweden**, first year declined in favor of the Wenner-Gren grant. Project title: “*A New Bayesian Approach to Understand the Evolution of Biodiversity Hotspots*”. Applicants: Alexandre Antonelli, Daniele Silvestro. Total amount: 62,000 €.

(May) **Freunde und Förderer grant** of the Goethe University, Frankfurt, Germany for a 2-week research stay at the James Cook University in Cairns (Australia). Total amount: 1,300 €.

(March) **Leibniz-DAAD Research Fellowship** funding a 1-year postdoctoral project titled: “A neglected wealth in phylogenies: the analysis of speciation and extinction rates”. Total amount: 22,080 €.

2011 (July) **Willkomm-Stiftung grant** of the Goethe University, Frankfurt, Germany and funds from the **Deutsche Bromeliengesellschaft** (German Bromeliads Society) supporting the participation to the XVIII International Botanical Congress in Melbourne (Australia). Total amount: 1,400 €.

(January) **BiK^F Outgoing grant** (Frankfurt, Germany) for a 4-week research stay at the Australian Tropical Herbarium in Cairns (Australia). Total amount: 2,000 €.

(June) **Optime Award** for best graduated students at the University and Polytechnic of Turin (Italy) from Club Optime, Unione Industriale Torino.

(January) **Scientific collaborator grant** from University of Turin, Italy (Prof. E. Balletto). Total amount: 4,000 €.

Teaching, lectures, workshops

- 2014** (February–July) Supervision of Mariia Korolyuk, master student in Complex System science at the **Chalmers University of Technology (Gothenburg, Sweden)** for a project (20 credits) titled: *Modeling continuous trait evolution in the absence of phylogenetic information*.
- (April 6) 1-day workshop on *Estimating speciation and extinction rates from the fossil record using PyRate* at the **University of São Paulo, Brazil**.
- (January 31) 1-day workshop on *Historical biogeography using Lagrange and BioGeoBEARS* at the **University of Gothenburg, Sweden** (F. Condamine, C. D. Bacon).
- 2013** (August 28) 1-day workshop on *Diversification rate estimation: Theory and practice* at the **University of Gothenburg, Sweden**.
- 2012** (September 24 – october 5) Lecturer at the **Recife Winter School on Phylogeny, Biogeography, and Spatial Modeling: Theoretical and Practical basis** at the **Federal University of Pernambuco, Recife, Brazil** (A. Benko-Iseppon, J. Schnitzler).
- (June 7–8) Lectures with practical computer work on *Bayesian modeling of speciation* within the Doctoral course on *Bayesian Statistics and Applications for Phylogenetics* at the **University of Lausanne, Switzerland** (N. Salamin, N. Lartillot).
- (May 31) 1-day workshop on “*Testing hypotheses on species diversification using novel Bayesian approaches*” at **James Cook University, Cairns, Australia**.
- 2009–2011** (Spring term) Lectures on *Molecular Evolution and Phylogenetic Inference* with practical computer work for Bachelor and Master students at **Goethe University, Frankfurt, Germany** (G. Zizka).
- 2011** (January 27) 1-day workshop on *Diversification in space: Parametric approaches for historical biogeography* at **James Cook University, Cairns, Australia**.
- (January 25) 1-day workshop on *Diversification through time: Inferring speciation and extinction rates from phylogenies* at **James Cook University, Cairns, Australia**.
- 2007–2008** Lectures on theoretical cladistics and phylogenetic inference during a course on *Systematics and Taxonomy* at the University of Turin, Italy (M. Meregalli).

Software

- PyRate** Python package to estimate speciation, extinction, and preservation rates from fossils using a Bayesian framework. Over **200 downloads, cited in 6 articles** since March 2014. Available at <https://sourceforge.net/projects/pyrate/>
- BayesRate** Bayesian estimation of diversification rates through time from dated phylogenies using Markov chain Monte Carlo. The program is written in Python and R. Over **1,300 downloads worldwide, cited in 25 articles** as of November 2014. Available at <http://sourceforge.net/projects/bayesrate/>.
- raxmlGUI** A graphical front-end for RAxML. Selected as official partner by M. Miller among the softwares that will feature REST services from the **CIPRES platform**. Over **17,600 downloads worldwide, cited in 331 articles** as of November 2014. Available at <http://sourceforge.net/projects/raxmlgui/>
- JIVE** R package to analyze inter- and intraspecific trait evolution with a hierarchical Bayesian model (main developer: A. Kostikova). Available at <https://github.com/trollius/jive>.
- SpeciesGeoCoder** Python package for easy and fast coding of species into user-defined operational units (main developer M. Töpel). Available at <https://github.com/mtop/speciesgeocoder>.
- StateStats** Python and R scripts to estimate the rates of state transition through time based on stochastic character mapping.

Reviewer for:

Journal of Biogeography, Systematic Biology, New Phytologist, Evolution, Global Ecology and Biogeography, Bioinformatics, Biological Reviews, Zoological Journal of Linnean Society.

Additional skills

Extensive experience in computer analysis and computational methods for phylogenetics, character mapping, population genetics, historical biogeography. Strong Python and R programming skills (numerical and scientific libraries).

Fluent English, basic Portuguese, Italian native speaker.

References

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|-------------------------|---|
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| Prof. Tiago B. Quental | Departamento de Ecologia, Universidade de São Paulo (USP)
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| Prof. Nicolas Salamin | Dept. of Ecology and Evolution, University of Lausanne
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