

GEORGE PACHECO

Evolutionary Biologist

DTU Aqua / Vejlsøvej 39, 8600 Silkeborg • Denmark

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25-03-1989 | Natal, Brazil



Initially trained as a biologist in the Brazilian Northeast, I have worked on several projects in the vein of animal evolutionary genomics investigating a diverse range of taxa—from tiny Collembolans to culturally evolving killer whales, which has given me a vast experience in the molecular lab and a fair understanding of the rationale behind bioinformatic analyses. During my scientific career, I have developed a profound interest in the genomic and epigenomic architecture of complex traits. Ultimately, I have a sound interest in the molecular mechanisms implicated in the emergence and maintenance of new and adaptive cognitive traits.

ACADEMIC POSITIONS

Postdoc Researcher | [Technical University of Denmark](#)

Mar 2021 – Present • Denmark

Advisors: [Dr. Jakob Hansen](#) & [Dr. Dorte Bekkevold](#)

Location: [Section for Marine Living Resources](#) | [National Institute of Aquatic Resources](#)

Postdoc Researcher | [University of Copenhagen](#)

Jan 2020 – Jun 2020 • Denmark

Advisor: [Prof. Thomas Gilbert](#)

Location: [Section for Evolutionary Genomics](#) | [GLOBE Institute](#)

ACADEMIC EDUCATION

PhD in Evolutionary Genomics | [University of Copenhagen](#)

Nov 2014 – Apr 2019 • Denmark

Thesis: Flying Rats Shall No Longer Be: A Population Genomic Analysis of Fancy and Feral Pigeons

Advisor: [Prof. Thomas Gilbert](#)

Co-Advisor: [Dr. Filipe Vieira](#)

Location: [Centre for GeoGenetics](#) | [Natural History Museum of Denmark](#)

MSc in Biology | [University of Copenhagen](#)

Feb 2012 – Aug 2014 • Denmark

Thesis: Insights into the Feral Pigeon Global Community Gained From Population Genomics

Advisor: [Prof. Thomas Gilbert](#)

Location: [Centre for GeoGenetics](#) | [Natural History Museum of Denmark](#)

Full Licensing & BSc in Biological Sciences | [Federal University of Rio Grande do Norte](#)

Aug 2006 – Jul 2011 • Brazil

Thesis: Cytogenetics Characterisation of the Species *Cichlasoma orientale* (Teleostei: Cichlidae: Cichlinae)

Advisor: [Prof. Wagner Molina](#)

Location: [Laboratório de Genética de Recursos Marinhos](#) | [Departamento de Biologia Celular e Genética](#)

EXTRA LAB EXPERIENCE

Lab Assistant | [University of Copenhagen](#) (Remunerated)

1 Aug 2013 – June 2014

Employer: [Prof. Thomas Gilbert](#)

Location: [Section for Evolutionary Genomics](#) | [Natural History Museum of Denmark](#)

Lab Intern | [Federal University of Rio Grande do Norte](#) (Volunteer)

1 Aug 2007 – 1 Aug 2008

Advisor: [Prof. Lucymara Fassarella Agnez-Lima](#)

Location: [Laboratory of Molecular Biology and Genomics](#)

RELEVANT COURSES

Supervising BSc & MSc Students | 1 ECTS

Dec 2015 | Denmark

University Pedagogy Introduction | 1 ECTS

Oct 2015 | Denmark

Workshop on Genomics | 8 ECTS

Jan 2015 | Czech Republic

Workshop on Molecular Evolution | 8 ECTS

Feb 2015 | Czech Republic

ASSOCIATIONS

Society for the Study of Evolution

Apr 2021 – Present

Danish Society for Neuroscience

Jan 2018 – Present

European Ornithologists' Union

Jan 2018 – Present

LANGUAGES

Portuguese ●●●●●●●●●●

English ●●●●●●●●●●

Spanish ●●●●●●●●●●

Danish ●●●●●●●●●●

Russian ●●●●●●●●●●

MY NUMBERS

40+
International
Collaborators

18+
Involved
in Projects

6+
Coffees
per Day

GRANTS

EMBO Short-Term Fellowship | 23 Sep – 22 Dec 2019

European Molecular Biology Organization • Germany

Full PhD Abroad Scholarship | Nov 2014 – Oct 2018

Conselho Nacional de Desenvolvimento Científico e Tecnológico • Brazil

Danish Government Scholarship and Tuition Fee Waiver | Feb 2012 – Jan 2014

Ministry of Science, Innovation and Higher Education • Denmark

Student Assistant Scholarship | Mar 2010 – Apr 2011

Conselho Nacional de Desenvolvimento Científico e Tecnológico • Brazil

Scientific Initiation Scholarship | Feb 2009 – Jul 2011

Conselho Nacional de Desenvolvimento Científico e Tecnológico • Brazil

RESEARCH VISITS

Carneiro Lab | 23 Sep – 22 Dec 2019 • Portugal

Research Centre in Biodiversity and Genetic Resources | University of Porto

Shapiro Lab | 20 Apr – 19 May 2015 • USA

School of Biological Sciences | The University of Utah

TEACHING EXPERIENCE

Supervision of Several Users of the Molecular Labs | University of Copenhagen

Feb 2014 – Dec 2018 • Denmark

Location: Section for Evolutionary Genomics | Natural History Museum of Denmark

Student Assistant of Entomology | Federal University of Rio Grande do Norte

Mar 2010 – Apr 2011 • Brazil

Advisor: Prof. Ricardo Andreezze

Location: Laboratório de Entomologia

SELECTED SCIENTIFIC EXPEDITIONS

Logistics Activities on the REBIO Atol das Rocas Conservation Unit

Nov 2008 | Rio Grande do Norte State • Brazil

Collection of Avian Samples | On behalf of the 10KBird Project

Feb 2016 | Rukanga Region • Kenya

Collection of Avian Zooarchaeological Samples

Feb 2016 | Negev Desert • Israel

Collection of Avian Samples

Nov 2015 | Tórshavn Region • Faroe Islands

SELECTED SCIENTIFIC EVENTS

II B10K Project Workshop

Feb 2020 | Copenhagen • Denmark

Genome 10K and Genome Science Conference

Aug 2017 | Norwich • England

I B10K Project Workshop

Oct 2016 | Beijing • China

XV Congress of the European Society for Evolutionary Biology

Aug 2015 | Lausanne • Switzerland

LX Brazilian Congress on Genetics

Aug 2014 | Guarujá • Brazil

FAVOURED QUOTATION

“There is grandeur in this view of life, with its several powers, having been originally breathed into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been, and are being, evolved.”

Nov 1859 – Charles Darwin

COMPUTATIONAL SKILLS

Bash ●●●○○○○○○○○

R ●●●○○○○○○○○

Python ●●○○○○○○○○○○

InDesign ●●●●○○○○○○

Illustrator ●●●○○○○○○○○

Photoshop ●●●○○○○○○○○

OTHER RELEVANT TRAINING

Participation in the XXIX Training for the Archipelago of St. Peter and St. Paul

Aug 2009 | Naval Base of Natal / Brazil

PADI Open Water Diver

Jul 2008 | Natal / Brazil

RELEVANT VOLUNTEER WORK

Science Faculty Mentor Programme

University of Copenhagen

Aug 2012 – Dec 2017 | Denmark

March for Science Copenhagen

Apr 2017 | Denmark

REFERENCES

Thomas Gilbert | Professor
University of Copenhagen | Denmark

tgilbert@sund.ku.dk

+45 23712519

Filipe Vieira | Senior Bioinformatician

Rigshospitalet | Denmark

filipe.garrett.vieira@regionh.dk

+45 50208262

Hein Van Grouw | Senior Curator

Natural History Museum | UK

h.van-grouw@nhm.ac.uk

+44 7792581455

HOBBIES



LIST OF PUBLICATIONS

Peer-reviewed / In Press

The Germline Mutational Process in Rhesus Macaque and Its Implications for Phylogenetic Dating Bergeron L., Besenbacher S., Bakker J., Zheng J., Li P., **Pacheco G.**, Sinding M. S., Gilbert M. T. P., Schierup M. H. & Zhang G. *GigaScience* / Vol. 10, pp. 1–14 • 2021

ROLE: I performed crucial lab work for this project, mainly working as the tutor of the leading author of this project ([Dr. Lucie Bergeron](#)) in our labs in Copenhagen, whom I introduced to some of the modern techniques that were used in this study. I also revised and approved the final version of this drafted article.

Why TRPV6 Currents Are Not Detectable in Native Cells – What Can We Learn from Bats? Wolske K, Fecher-Trost C., Wesely C., Löhr H., Philipp S., Flockerzi V., **Pacheco G.** & Wissenbach U. *Cell Calcium* / Vol. 92, Article Nr. 102302 • 2020

ROLE: I conducted some lab work for this project. I also revised and approved the final version of the drafted article.

Dense Sampling of Bird Diversity Increases Power of Comparative Genomics Feng S., Stiller J., Deng Y., Armstrong J., Fang Q., Reeve A. H., Xie D., Chen G., Guo C., Faircloth B. C., Petersen B., Wang Z., Zhou Q., Diekhans M., Chen W., Andreu-Sánchez S., Margaryan A., Howard J. T., **Pacheco G.**, Sinding M. S., Puetz L., Cavill E., Ribeiro Â. M., Fjeldså J., Hosner P. A., Brumfield R. T., Christidis L., Bertelsen M. F., Tietze D. T., Robertson B. C., Song G., Borgia G., Claramunt S., Lovette I. J., Cowen S. J., Njoroge P., Dumbacher J. P., Ryder O. A., Fuchs J., Bunce M., Burt D. W., Cracraft J., Meng G., Hackett S. J., Ryan P. G., Jønsson K. A., Jamieson I. G., da Fonseca R. R., Braun E. L., Houde P., Mirarab S., Suh A., Stervander M., Hansson B., Sigeman H., Ponnikas S., Frandsen P. B., Van der Zwan H., Balakrishnan C. N., Clark A. G., Fitzpatrick J. W., Bowman R., Chen N., Cloutier A., Sackton T. B., Foote D. J., Shakya S. B., Sheldon F. H., Vignal A., Soares A. E. R., Shapiro B., González-Solís J., Ferrer-Obiol J., Rozas J., Riutort M., Tigano A., Friesen V., Dalén L., Urrutia A. O., Székely T., Liu Y., Campana M. G., Corvelob A., Fleischer R. C., Rutherford K. M., Gemmell N. J., Dussex N., Mouritsen H., Thiele N., Delmore K., Liedvogel M., Franke A., Hoepfner M. P., Krone O., Fudickar A. M., Milá B., Ketterson E. D., Fidler A. E., Friis G., Parody-Merino Á. M., Battley P. F., Cox M. P., Lima N. C. B., Prosdociami F., Parchman T. L., Schlinger B. A., Loiselle B. A., Blake J. G., Lim H. C., Day L. B., Fuxjager M. J., Baldwin M. W., Braun M. J., Wirthlin M., Dikow R. B., Ryder T. B., Camenisch G., Keller L. F., DaCosta J. M., Hauber M. E., Louder M. I. M., Witt C. C., McGuire J. A., Mudge J., Megna L. C., Carling M. D., Wang B., Taylor S. A., Del-Rio G., Aleixo A., Vasconcelos A. T. R., Mello C. V., Weir J. T., Haussler D., Li Q., Yang H., Wang J., Lei F., Rahbek C., Gilbert M. T. P., Gary R. Graves, Jarvis E. D., Paten B. & Zhang G. *Nature* / Vol. 587, pp. 252–257 • 2020

ROLE: Acting as the main responsible person for this large-scale genomic project in Copenhagen, I performed a massive amount of lab work for this study. Moreover, I also contributed to the drafting of this article and approved its final version.

Phylogeny of Neotropical Seirinae (Collembola, Entomobryidae) Based on Mitochondrial Genomes Nerivania G., **Pacheco G.**, Shanlin L., Cipola N., Berbel-Filho W., Feng Z., Gilbert M. T. P. & Bellini B. *Zoologica Scripta* Issue / 0, pp. 1–11 • 2020

ROLE: I was involved in this project since its conception, namely in securing a visiting PhD scholarship to the first author of this study ([Dr. Nerivania Godeiro](#)), who I helped to train in molecular techniques at our labs in Copenhagen. Then, I generated together with Neri part of the data that was used in this project. I also contributed to the article writing process and approved its final version.

Darwin's Fancy Revised: An Updated Understanding of the Genomic Constitution of Pigeon Breeds **Pacheco G.**, van Grouw H., Shapiro M. D., Gilbert M. T. P. & Vieira F. G. *Genome Biology and Evolution* / Vol. 12, Issue 3, pp. 136–150 • 2020

ROLE: This was one of the main articles that composed my PhD thesis, thus I acted as the leader author of this study from its commencement until its end.

Evolutionary History, Genomic Adaptation to Toxic Diet and Extinction of the Carolina Parakeet Gelabert P., Sandoval-Velasco M., Serres A., Renom P., Margaryan A., de-Dios T., Fang Q., Feng S., Mañosa S., **Pacheco G.**, Ferrando-Bernal M., Shi G., Hao F., Chen X., Stiller J., Petersen B., Navarro A., Marquès-Bonet T., Deng Y., Dalén L., Zhang G., Antunes A., Gilbert M. T. P. & Lalueza-Fox C. *Current Biology* / Vol. 30, pp. 1–7 • 2019

ROLE: I performed crucial lab work for this project, such as DNA extractions and molecular quality checks. Naturally, I also contributed to the article writing process and approved its final version together with all other authors.

The Discovery of *Lepidosira* Schött 1925 (Collembola, Entomobryidae) in Neotropical Region and Its Systematic Position Among the Entomobryinae Nunes R. C., Godeiro, N. N., **Pacheco G.**, Liu S., Gilbert M. T. P., Alvarez-Valin F., Zhang F. & Bellini B. C. *Zoologica Scripta* / Vol. 48, Issue 6, pp. 783-800 • 2019

ROLE: This was a side project that resulted from Neri's visit to Copenhagen (see article 2), thus my role was the same here.

High-coverage Genomes to Elucidate the Evolution of Penguins Pan H., Cole T. L., Bi X., Fang M., Zhou C., Yang Z., Hart T., Bouzat J. L., Argilla L. S., Bertelsen M. F., Boersma P. D., Bost C., Cherel Y., Dann P., Fiddaman S. R., Howard P., Labuschagne K., Mattern T., Miller G., Parker P., Phillips R. A., Quillfeldt P., Ryan P. G., Taylor H., Thompson D. R., Young M. J., Ellegaard M. R., Gilbert M. T. P., Sinding M. S., **Pacheco G.**, Shepherd L. D., Tennyson A. J. D., Grosser S., Kay E., Nupen L. J., Ellenberg U., Houston D. M., Reeve A. H., Johnson K., Masello J. F., Stracke T., McKinlay B., Zhang D. X. & Zhang G. *GigaScience* Vol. 8, Issue 9, pp. 1-17 • 2019

ROLE: I performed crucial lab work for this project, such as sample acquisition, DNA extractions and molecular quality checks. I also contributed to the article writing process and approved its final version together with all other authors.

Killer Whale Genomes Reveal a Complex History of Recurrent Admixture and Vicariance Foote A. D., Morin P. A., Martin M. D., Gopalakrishnan S., Louis M., **Pacheco G.**, Robertson K. M., Sinding M-H. S., Sousa C. S., Amaral A. R., Baird R. W., Baker C. S., Balance L., Barlow J., Brownlow A., Collins T., Constantine R., Dabin W., Rosa L. D., Davison N. J., Durban J. W., Esteban R., Ferguson S. H., Forney K. A., Gerrodette T., Guinet C., Hanson M. B., Hoggard W., Kaschner K., Matthews C. J. D., Pitman R. L., Samarra F. I. P., de Stephanis R., Tavares S., Tixier P., Totterdell J. A., Wade P., M. Gilbert M. T. P., Wolf J. B. W. & Excoffier L. *Molecular Ecology* / Vol. 28, Issue 14, pp. 3427-3444 • 2019

ROLE: I performed crucial lab work for this project, such as sample acquisition, DNA extractions and molecular quality checks. I also received the leading author of this project (**Dr. Andrew Foote**) at our labs in Copenhagen and introduced him to some of the modern techniques that were used in this study. I also contributed to the article writing process and approved its final version together with all other authors.

Hologenomic Adaptations Underlying the Evolution of Sanguivory in the Common Vampire Bat Mendoza M. L. Z., Xiong Z., Escalera-Zamudio M., Runge A. K., Thézé J., Streicker D., Frank H. K., Loza-Rubio E., Liu S., Ryder O. A., Castruita J. A. S., Katzourakis A., **Pacheco G.**, Taboada B., Löber U., Pybus O. G., Li Y., Rojas-Anaya E., Bohmann K., Baez A. C., Arias C. F., Liu S., Greenwood A. D., Bertelsen M. F., White N. E., Bunce M., Zhang G., Sicheritz-Pontén T. & Gilbert, M. T. *Nature Ecology & Evolution* / Vol. 2, pp. 659-668 • 2018

ROLE: I performed crucial lab work for this project, such as DNA extractions, molecular quality checks and PCR experiments. I also contributed to the article writing process and helped its main author to finish up its final draft version based on inputs from all other collaborators.

Genomic Population Structure of Freshwater-resident and Anadromous Ide (*Leuciscus idus*) in North-western Europe Skovrind M., Olsen M. T., Vieira F. G., **Pacheco G.**, Carl H., Gilbert M. T. & Møller P. R. *Ecology and Evolution* Vol. 6, Issue 4, pp. 1064-1074 • 2016

ROLE: I performed crucial lab work for this project, such as DNA extractions and molecular quality checks. But most importantly, I introduced the main author of this study (**Dr. Mikkel Skovrind**) to the modern sequencing method that was used in this project. I also contributed to the article writing process and approved its final version.

Padrões Citogenéticos de Duas Espécies de Ciclídeos de Bacias do Semi-árido do Brasil: *Crenicichla menezesi* e *Cichlasoma orientale* Molina, W. F., **Pacheco, G. A.** & Berbel Filho, W. M. *Biota Amazônia* • 2014

ROLE: I conducted many of the experiments for this project and also wrote an initial drafted article version.

Submitted / Under Review

Additive and Non-additive Epigenetic Signatures of Hybridisation Between Fish Species with Different Mating Systems

Berbel-Filho W. M., Tatarenkov A., **Pacheco G.**, Espirito-Santo H. M. V., Lira M. G., de Leaniz C. G., Avise J. C., Lima S. M. Q., Rodríguez-López C. M. & Consuegra S. / Under revision in *Evolution* (**First Round of Revision**).

ROLE: I conducted several bioinformatic analyses for this project and also contributed to the discussion of the results and the writing of the drafted article.

Conservation Genomics of the Endangered Seychelles Magpie Robin (*Copsychus sechellarum*): A Unique Insight into the History of a Precious Endemic Bird

Cavill E., Gopalakrishnan S., Puetz L., Ribeiro Â., Mak S., da Fonseca R., **Pacheco G.**, Dunlop B., Accouche W., Shah N., Zora A., Calabrese L., Genner M., Jones G., Guo C., Zhang G. & Gilbert, M. T. P. / Under revision in *IBIS* (**Second Round of Revision**).

ROLE: I performed crucial lab work for this project, such as DNA extractions, molecular quality checks and PCR experiments. I also contributed to the article writing process and helped its main author to finish up its final draft version based on inputs from all other collaborators.

In Preparation

Genomic Insights into the Ubiquitous Feral Pigeon's Formation **Pacheco G.**, Vieira F. G., Martin M. D., Olsen M. T., Hulva P., Raso

T. deF., Njoroge P., Salaberria C., López-Rull I., Lalueza-Fox C., Ramírez O., Ávila-Arcos M. C., Escobar P. R., Faria R., Carneiro M., Sotelo G., Danielsen J., Haddad N., Khoury F., Dor R., Halajian A., Arias M. B., Krone O., Auls S., Seneviratne S. S., Mathiaparanam K., Bunce M., Coghlan M. L., Fjeldså J. & Gilbert M. T. P.

ROLE: This was one of the main articles that composed my PhD thesis, thus I acted as the leader author of this study from its commencement until now that we are close to submitting it to publication.

Genomic Variation Among European Perch *Perca fluviatilis* Driven by Differentiated Habitat and Selection Skovrind M.,

Pacheco G., Olsen M. T., Fietz K., Christensen E. F. A., Kragh M. A., Vieira F. G., Carl H., Gilbert M. T. P. & Møller P. R.

ROLE: I conducted several bioinformatic analyses for this project and also contributed to the discussion of the results as well as to the writing of the article.

Evolutionary Genomics of the Rarest Mammal in the World, the Microendemic *Cavia intermedia* (Caviidae, Mammalia)

Escalona M. A. R., de Manuel M., Gopalakrishnan S., **Pacheco G.**, Barreiro F. S., Ciucani M. M., Sinding M.-H. S., Margaryan A., Petersen B., Furnari N., Gava A., Cherem J., Salvador C. H., Dalén L., Gilbert M. T. P. & Bonatto S. L.

ROLE: During his visit at our labs in Copenhagen, was responsible to introduce the main author of this study (Dr. Manuel Escalona) to the sequencing techniques used in this project. Thus, together with Manuel, I carried out wet lab work for this project as well as contributed to some of the analyses and rationale applied to this project.

I am also involved in several other genomic projects – from birds to snakes, which will certainly be published in due time.