

ADALGISA (Gisella) CACCONE
Curriculum Vitae
August 2017
adalgisa.caccone@yale.edu
<http://caccone.yale.edu/>

EDUCATION:

Yale University	Biology Ph.D.	1986
<i>Ph.D. Advisor:</i>	<i>Jeffrey R. Powell (Yale University).</i>	
Università di Roma "La Sapienza"	Biology Laurea "Magna Cum Laude"	1978
<i>Laurea Thesis Advisor:</i>	<i>Valerio Sbordonì (Un. Tor Vergata, Rome, Italy).</i>	

ACADEMIC APPOINTMENTS:

2012-present:	Senior Research Scientist, School of Epidemiology and Public Health, Yale University.
2005-2012:	Lecturer, School of Epidemiology and Public Health, Yale University.
2003-present:	Director of the DNA Analysis facility on Science Hill, Yale University.
2001-present:	Senior Research Scientist, School of Forestry and Environmental Studies, Yale University.
2000-present:	Senior Research Scientist, Department of Ecology and Evolutionary Biology, Yale University.
2000-present:	Curatorial Affiliate, Peabody Museum of Natural History, Yale University.
1998-present:	Lecturer, Department of Ecology and Evolutionary Biology.
1998-present:	Director "YIBS-Center for Genetic Analysis of Biodiversity", Yale University.
1997-1999:	Research Scientist, Yale University.
1987-1997:	Ricercatore confermato, Un. Tor Vergata, Rome, Italy.
1992-1997:	Associate Research Scientist, Yale University.
1988-1992:	Research Associate, Yale University.
1986-1988:	Postdoctoral Associate, Yale University.
1984-1987:	Ricercatore, Università di Tor Vergata, Rome, Italy.

PROFESSIONAL ACTIVITIES & RESEARCH INTERESTS: I am a senior research scientist in the Department of Ecology and Evolutionary Biology at Yale University, with secondary appointments in the School of Epidemiology and Public Health and the School of Forestry and Environmental Studies. I am also the director of a research and training center within the Yale Institute for Biospheric Studies (YIBS), the Center for Genetic Analyses of Biodiversity (<http://cgab.yale.edu/>). The goal of this center is to enhance research opportunities and train students to use population genetic and genomic tools for organismal levels analyses. I am also the director a fee-for-service facility for DNA Sanger sequencing and fragment analyses (<http://dna-analysis.yale.edu/>).

My research interests are in the broad area of evolutionary genetics and genomics, using DNA analyses to shed light on a variety of related topics, including phylogeography, landscape genetics, invasion biology, and conservation genetics. For the past 20+ years I have been using population genetic approaches to help elucidate the evolutionary and ecological forces shaping species of conservation interest as well as vectors and parasite distributions. For the past 20 years I have led research on Galapagos giant tortoises aimed at understanding their evolutionary history and using this knowledge to help manage. These projects are carried out in collaboration with the Galapagos National park and the Galapagos Conservancy. In parallel with this line of research I am also using evolutionary genetic principles and methods to reconstruct the past and current history of vectors and parasites to inform control efforts. I worked on the main malaria vectors in Africa, the mosquitoes from the *Anopheles gambiae*

complex. In recent years my focus has been on other vectors (*Glossina* tsetse flies, *Aedes aegypti* and *Ae. albopictus* mosquitoes, ticks, and Norway rats) and on parasites that cause sleeping sickness (*Trypanosoma*), which are vectored by tsetse flies, and on tick borne diseases, such as Lyme disease and babesiosis (*Borrelia* and *Babesia*). In general I am using population genetic and genomics to understand the evolutionary and ecological processes shaping range distributions at different spatial scales, from worldwide patterns to urban ones. I am also interested in identifying adaptive polymorphisms responsible for epidemiologically relevant traits, including the ability to transmit trypanosomes, the capacity to adapt to cold temperatures, and insecticide and drug resistance. Ongoing projects include:

- Evolutionary genetics and conservation of Galapagos giant tortoises (Galapagos islands, Ecuador);
- Evolutionary genetic and genomics of tsetse flies (*Glossina fuscipes* and *G. pallidipes*) and its parasites and symbionts (*Trypanosoma brucei*, *Wolbachia*, and *Wiggsworthia*) (Uganda, Kenya, and Tanzania)
- Population and evolutionary genomic of *Aedes* mosquitoes (worldwide)
- Ecological genetics of *Borrelia burgdorferi* and *Babesia microti* and their blacklegged tick vector, *Ixodes scapularis* (USA)
- Urban slum ecology and population genetics of the Norway rats in Salvador (Brazil);
- Evolutionary genetics of terrestrial pest insects and their predators (hemlock wooly adelgids, winter and gypsy moths) (USA)
- Ecological genomics of the fresh and saltwater alewives (*Alosa pseudoharengus*) and its preys. (USA)
- Population genetics and genomics of hookworms (Ghana).
- Population genetics of owl monkeys (Argentina).

TEACHING EXPERIENCE:

Yale University (since 1998):

Undergraduate and graduate courses taught as sole instructor:

- Lecture course: Molecular Ecology (EEB325).
- Laboratory courses: Molecular Systematic (EEB315-EEB316) and Evolutionary Biology (EEB 226).
- Seminars: Molecular Approaches in Systematics, Conservation Genetics, and Behavioral Ecology (EEB 375), Conservation Genetics (EEB320), Topics in Evolutionary and Conservation Genetics (EEB617).

Other teaching and advising:

- Sections in Conservation Biology (EEB115- EEB515).
- Advisor for research projects for undergraduate and graduate (PhD and Master) students from several departments and schools across campus (EEB, Geology, Anthropology, MCDB - Dept of Molecular and Cell Biology-, FES -School of Forestry and Environmental Studies-, and EPH -School of Epidemiology).
- Advisor on PhD research projects for Kenyan, Ugandan, and Tanzanian students through two NIH Fogarty training grants aimed at building research capacity in Trypanosomiasis research in Eastern Africa (see current and past grant support).
- Advisor on STARS minority students and local high school students. Since 1998 trained more than 200 undergraduate and 25 graduate students (Master and PhD; List available upon request).

- External PhD thesis advisor: C. Douady, University of Lyon (Lyon, France), Ryan Garrick, Monash University (Melbourne, Australia), Evelyn Jensen (Un. of British Columbia, Okenagan, Canada).

II University of Rome (1984-1988): Lectures and laboratory sections in Invertebrate Zoology.
Seminar: Molecular Evolution.

PROFESSIONAL ACTIVITIES:

YALE:

- Director of the YIBS Center for Genetic Analysis of Biodiversity (YIB-CGAB; <http://cgab.yale.edu/>).
- Director of the DNA Analysis Facility on Science Hill (DAFSH; <http://dna-analysis.yale.edu/>).
- Served on University wide committees (Committee on the economic status of the University (CESOF), Deans Search Advisory Committee).

NON-YALE:

ASSOCIATE EDITOR:

- Associate Editor: *PLOS Neglected Tropical Diseases* (2008-present).
- Associate Editor: *Conservation Genetics* 2003-2015.
- Associate Editor: *Molecular Evolution and Phylogenetics*, 2001-2005.

EDITORIAL BOARDS:

- Editorial Board, *BMC Evolutionary Biology* 2007-present.
- Editorial Board, *Journal of Heredity* 2007-2015.
- Editorial Board, *Zoo Biology* 2000-present.
- Editorial Board, European Zoological Society 2016-present

REVIEWER:

- SCIENTIFIC JOURNALS: Science, Nature, PNAS, Proceedings Royal Soc. B. Molecular Ecology, Evolution, Genetics, Current Biology, Evolutionary applications, Conservation biology, Animal Conservation among others. American Journal of Tropical Medicine and Hygiene, Molecular Biology and Evolution, Journal of Molecular Evolution, Systematic Biology, Insect Molecular Biology, Molecular Phylogenetics and Evolution, Journal of Experimental Zoology, Proceedings of the Royal Society, Bollettino di Zoologia, International Journal of Speleology, Journal of Entomology. *Granting agencies:* NSF Systematic Biology, Population Biology, Behavioral Biology Panels, EEC and NERC grants.
- GRANTING AGENCIES: NSF, NIH, USDA, and several international funding agencies (EEC, NERC).

OTHER PROFESSIONAL ACTIVITIES:

- Council member: American Genetic Association 2004-2007.
- Council member: Society for the Study of Evolution 2006-2008.
- Council member: Society for Systematic Biology 2008-2011.
- Council member: IUCN Species Survival Commission (SSC) Tortoise and Freshwater Turtle Specialist Group (TFTSG) (2007- present).
- Vice president of the Italian Evolutionary Biology Society, 2006-2007.
- Panel member: NIH Study Section (2009-2010), Shared instrumentation grant program.
- Chair of the SSE International Affair Committee (SSE) (2006-2009).
- Co-organizer of the Third International Conservation Genetics symposium. AMNH, New York, NY 27-29 Sept. 2007.
- Co-organizer of the Conservation Genetics Workshop in Galapagos, Ecuador. 9-18 December, 2007.
- Organizer of the NIH sponsored workshop: Using geographic information systems and remote sensing to study disease vector habitat. June 1-6, 2015, TRC campus, Muguga,

Kenya (<http://sbsc.yale.edu/news/workshop-using-geographic-information-systems-and-remote-sensing-study-disease-vector-habitat>).

- Scientific Fellow of the Wildlife Conservation Society (1998-present).
- Organizing Committee for the Molecular Biology and Evolution Meeting (MBE 2000).
- Conservation Science Panel member of SEI (Sustainable Ecosystem Institute).
- 1981: Italian translation of "Evolutionary Biology" by D.J. Futuyma, Zanichelli publ.
- 1982: Italian translation of "Evolving" by F.J. Ayala and J.M. Valentine, Zanichelli publ.

INVITED TALKS: Since 1989 I have been an invited speaker in ~ 70 symposium talks and University/Museum based seminars in the USA and abroad (list available upon request).

MEDIA RECOGNITION: Several of my papers on the evolutionary biology and conservation genetics of Giant Galapagos tortoises have received public media attention with articles in national and international journals. A quick web search on Giant Galapagos tortoises will lead to recent popular articles describing our work including the most recent one on the possibility of resurrecting two extinct species via selective breeding and the description of a new species.

PUBLICATIONS IN SCIENTIFIC JOURNALS: >200 peer-reviewed articles and book chapters (see pub. list).

FUNDING SUPPORT:

PAST: Multiple grants from federal and non-federal agencies including: NIH, NSF, WHO, Paul and Bay Foundation, National Geographic, Eppley Foundation, Galapagos Conservancy, Turtle Conservation, Mohamed bin Zayed Conservation Fund, US Forest service, US Fish and wildlife, USDA, Medical Care Development (List available upon request).

CURRENT SUPPORT:

Project Title: *Recovering Two Lost Populations of Giant Tortoises*

Source of Support: Swiss Association of Friends of the Galapagos Islands

Total Award Period Covered: 5/1/2017 - 4/30/2018

Project Title: *Genetics and Conservation Join to Reverse Extinction in Giant Galapagos Tortoises*

Source of Support: The Mohamed bin Zayed Species Conservation Fund

Total Award Period Covered: 5/1/2016 - 4/30/2017

Project Title: *Reversing Extinction in the Galapagos: RECOVERING TWO LOST POPULATIONS OF GIANT TORTOISES*

Source of Support: Galapagos Conservancy

Total Award Period Covered: 3/1/2016 - 12/31/2017

Support: Current

Project Title: COLLABORATIVE RESEARCH: *Ecological and evolutionary dynamics of secondary contact*

Source of Support: National Science Foundation

Total Award Period Covered: 5/1/2016 - 4/30/2020

Project Title: *Probing the natural genomic diversity of Babesia microti*
Source of Support: NIH
Total Award Period Covered: 5/7/2015 - 4/30/2018

Project Title: *Control of Tsetse Fly Transmitted Diseases in Kenya*
Source of Support: NIH
Total Award Period Covered: 1/1/2015 - 12/31/2019

Project Title: *Tsetse Transmitted African Trypanosomiasis*
Source of Support: Fogarty International Center/NIH
Total Award Period Covered: 7/6/2013 - 1/31/2018

Project Title: *Microbial Source Tracking in Long Island Sound Watershed using DNA Analyses*
Source of Support: Westport Weston Health District/DOA
Total Award Period Covered: 6/26/2015 - 9/30/2017

Project Title: *Evolutionary genetics of tsetse and its symbionts*
Source of Support: NIH
Total Award Period Covered: 2/15/2014 - 1/31/2019

Project Title: *Impact, management, and control of hemlock woolly adelgid*
Source of Support: US Forest Service
Total Award Period Covered: 9/11/2012 - 9/10/2017

Project Title: *Ecology of Leptospirosis in Urban Slums*
Source of Support: NIH
Total Award Period Covered: 9/1/2012 - 7/31/2017

Location of Project: Yale University

Project Title: *Genetics of Vector Populations: Aedes aegypti*
Source of Support: NIH
Total Award Period Covered: 7/1/2012 - 5/31/2018

Project Title: *Emerging benzimidazole resistance in human hookworms*
Source of Support: NIH
Total Award Period Covered: 7/1/2017 - 6/30/2022

Project Title: *Population Genetics of Invasive Forest Pests in the Eastern United States*
Source of Support: Forest Service/Department of Agriculture
Total Award Period Covered: 9/1/2017 - 5/31/2019

PENDING SUPPORT:

Project Title: *Evolution in the metropolis: integrating human-altered gene flow and admixture into models of local adaptation.*

Source of support: NSF

Total Award Period Covered: 3/1/2018 - 2/28/2022

Project Title: *Population genomics of a globally distributed arbovirus vector, Aedes Albopictus*

Source of Support: NIH

Total Award Period Covered: 4/1/2018 - 3/31/2023

Project Title: *Life-History and genetic consequences of Competition between solitary and pair-bonded Owl Monkeys of Argentina*

Source of Support: NSF.

Total Award Period Covered: 2/1/2018 - 1/31/2021