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Professional Resources In Science & Mathematics
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Professional Preparation

Queens College, CUNY	Biology	B.A. 1969
Queens College	Biology	M.A. 1974
City University of New York	Biology	Ph.D. 1976

Dissertation: "Behavioral Ecology of Flying Squirrels (*Glaucomys volans*)."

Appointments

2005 – now	Smithsonian Institute, Associate in Communications: providing science education programming to schools
1995 - now	Montclair State University, NJ. Director, PRISM: providing science and mathematics professional development to teachers
1990-1995	Upsala College, NJ: Full Professor and Chair of Biology
1977-1990	Upsala College, NJ: Assistant Prof/ Associate Prof Biology

Teaching Experience

Undergraduate courses in General Biology, Biology for Non-majors, Embryology, Human Anatomy and Physiology, Comparative Anatomy, Animal Behavior, Ecology, Evolution, Botany, Scientific Illustration. Graduate course in Ecology. Graduate courses in Teaching Science.

Experience/ Accomplishments

Research: 40 years of investigations in field ecology of mammals in North American and Neotropical Forests, with specialization in squirrel population dynamics and ecology and tropical cat (ocelot and jaguar) home range, prey selection, and behavior. Early innovator since 1995 in use of surveillance cameras to document mammal population movements and density. Developer of a unique 30-year dataset on the mammalian ecology of a Panamanian forest. Expertise in live-trapping, census methodologies, and trail transect methods.

STEM Education:

- Early innovator in the use of **internet STEM education programming**, especially videoconference technology to connect K-12 classrooms (since 2003) globally with researchers at the Smithsonian Tropical Research Institute in Panama and students

in Belize, Australia, Madagascar, and Thailand: appointed Smithsonian Associate in Communications. Created “The Rainforest Connection Live!” (prism.montclair.edu)

- Designer of education **programs that produce significant gains in teacher and student content knowledge**, resulting in the award of several large federal and state grants for science and mathematics education totaling more than \$12 million since 1994. Created several large-scale professional development programs that help K-12 teachers combine content and pedagogical approaches to teach science and mathematics. Awarded competitive funding by the National Science Foundation (\$2.8 million), the New Jersey Department of Education and the US Department of Education Math-Science Partnership Program (\$6 million over 10 years), the NJ Commission on Higher Education (\$400 K), the Bristol-Myers Squibb Foundation (\$600 K), and several private foundations. The Wipro Foundation has awarded \$1.3 million to PRISM to develop a **science teacher leadership program**.
- Founder of PRISM (Professional Resources In Science & Mathematics), a **professional development center for STEM education**, with a staff of scientists, mathematicians, former K-12 teachers, and administrative personnel. PRISM and earlier programs designed by Dr. Willis have served over 5,000 teachers and more than 60,000 students since 1994. Her PRISM team members visit classrooms in New Jersey, offer STEM workshops and courses for teachers, advise principals and supervisors on STEM curriculum, and maintain distance-learning programs.
- Designer of **STEM education media material** for public outreach on long-term research at the Smithsonian Tropical Research Institute which has been highlighted in Discovery Channel, BBC, and Animal Planet TV documentaries, in the JASON online Expeditions, and in Smithsonian Institution biennial reports.

Awards and Recognition:

- Commended by the New Jersey Commission on Higher Education for Excellence in Science Teacher Education (2012).
- Awarded by the Bristol-Myers Squibb Corporate Philanthropy Program to implement a **Workplace Skills Curriculum** project to develop modules and training programs to educate students for **job skills in STEM professions** in NJ. 2012
- Under Karakin Foundation funding (2013) and the Bristol-Myers Squibb Corporate Philanthropy support, PRISM is the NJ state leader to provide **STEM professional development specifically in support of the Next Generation Science Standards**, to be implemented in 2014.
- Selected by the New Jersey State Science Coordinator to serve as the scientist consultant for review of the first two drafts of the **Next Generation Science Standards for adoption by the State**.

- Invited under National Science Foundation funding to be trained to become a State trainer to lead the New Jersey project in a new **hybrid online/in-person format of K-12 STEM professional development.**

Presentations and Workshops

In addition to annual workshops for PRISM programs for school districts and summer institutes on science content and pedagogy for K-12 teachers:

- Invited speaker on “Teaching to the Next Generation Science Standards” at the KIPP Institute national retreat for teachers. Newark, NJ. October 2013
- Invited by Honduran STEM educators to be the designer and presenter of an **institute on STEM education integrated with science research** for graduate students, K-12 teachers, and national park biologists as part of our collaboration in mammal population research integrated with school science programs. 2012
- Co-authored presentation with K. Milton for the August 2012 International Primatological Society annual conference, Mexico: Differential Effects of Unusual Climatic Stress on Two Sympatric Primate Species (*Alouatta palliata* and *Cebus capucinus*) in Panama.
- Presenter of annual workshops on **integrating research findings with science education for the public in Panama** at the Smithsonian Tropical Research Institute for their public outreach staff.
- Presented papers on **innovations in science education in the USA** at the 30th Seminar of International Society for Teacher Education in Hong Kong, May 2013 and at the 29th Seminar in Bhutan, May 2012.
- Presented an online seminar for graduate teacher education classes at the Normal School of Antananarivo, Madagascar, June 2013.
- Presented on “Support for fecal noninvasive genetics as a valid technique for estimating population density of elusive animals,” Rodgers T.W. and J. Giacalone. American Society of Mammalogists, annual meeting, Philadelphia, PA June 2013

Peer-Reviewed Publications:

Milton, K. and **J. Giacalone**. 2013. (In press) Differential Effects of Unusual Climatic Stress on Two Sympatric Primate Species (*Cebus capucinus* and *Alouatta palliata*) on Barro Colorado Island, Panama. *American Journal of Primatology*. December 2013.

Laurance, W., et al. **J. Giacalone Willis**. 2012. Averting Biodiversity Collapse in Tropical Forest Protected Areas. *Nature*. July 25, 2012, online 11318.

Aliaga-Rossel, E., R. Moreno, R. Kays, and **J. Giacalone**. 2006. Ocelot (*Leopardus pardalis*) Predation on Agouti (*Dasyprocta punctata*). *Biotropica*. 38(5): 691-694.

Moreno, R. and **J. Giacalone**. 2006. Ecological Data Obtained from Latrine Use by Ocelots (*Leopardus pardalis*) on Barro Colorado Island, Panama. *Tecnociencia* Vol.8 (1): 7-21.

Milton, K., **J. Giacalone**, S. J. Wright, and G. Stockmayer. 2005. Do Frugivore Population Fluctuations Reflect Fruit Production? In J. L. Dew and J. P. Boubli, eds., *Tropical Fruits and Frugivores*. The Netherlands: Springer.

Ebler, B. and **J. Giacalone Willis**. 2003. Efficiency and Effectiveness in Science Education Reform: The case of the Newark Public Schools. *Journal of the International Society for Teacher Education*. 7(1): 30-38.

Willis, J., J. Greenberg, and J. McMillan-Brown. 1998. Engaging Urban Teachers in Science. *Journal of the International Society for Teacher Education*. Vol. 1998.

Lustigman, B., A. DiLorenzo, and **J. Willis**. 1997. Student-Generated Projects in Teacher Preparation. In S. Tobias and J. Raphael, ed., *The Hidden Curriculum- Faculty-made Tests in Science*, Part 2. Upper-division courses. New York: Plenum Press.