

Nashelly Meneses

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Department of Biological Sciences
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Education

- 2012 Ph. D., Biology
Northern Arizona University, Department of Biological Sciences.
Dissertation: The genetic and environmental components of *Populus*-herbivore interactions
Advisor: Thomas G. Whitham Ph. D.
Advisor: Gerard J. Allan Ph. D.
- 2002 B. Sc., Biology
Universidad Nacional Autónoma de México, Facultad de Ciencias.
Thesis: Biología reproductiva y un análisis del impacto de la fragmentación sobre el éxito reproductivo de *Bactris mexicana* en la selva de Los Tuxtlas
Reproductive biology and an analysis of the impact of forest fragmentation on the reproductive success of Bactris mexicana in Los Tuxtlas tropical rainforest
Advisor: Rodolfo Dirzo Ph. D.
- 1999 Exchange student
Concordia University, Montréal, Canada

Academic positions

- Part-time Faculty. Department of Biological Sciences. Northern Arizona University. 2012 –
Part-time Faculty. Center for International Education. Northern Arizona University. 2013 –
Program Coordinator, Instructor. Field Experience in Conservation Biology.
Center for International Education. Northern Arizona University. 2012 –

Research experience

- Research Ecologist. Merriam-Powell Center for Environmental Research and Environmental Genetics and Genomics Laboratory. Northern Arizona University. 2012 –
Research Associate. Department of Biological Sciences. Northern Arizona University. 2012 –
Research Assistant. P.I. Thomas G. Whitham Ph. D.
Cottonwood Ecology Group.
Department of Biological Sciences. Northern Arizona University. 2007 – 2010
Consejo Nacional de Ciencia y Tecnología 2002 – 2007
Research Assistant. P. I. Rodolfo Dirzo Ph. D.,
Laboratorio de Interacciones Planta-Animal.
Instituto de Ecología. Universidad Nacional Autónoma de México.
Consejo Nacional de Ciencia y Tecnología 2000 – 2001

Publications

Peer-reviewed

- Compson ZG, Hungate BA, Whitham TG, Meneses N, Busby P, Wojtowicz T, Ford AC, Adams KJ, Marks JC. 2016. Plant genotype influences aquatic-terrestrial ecosystem linkages through timing and composition of insect emergence. *Ecosphere*. In press
- Zinkgraf M, Meneses N, Whitham TG, Allan GJ. 2016. Genetic variation in NIN1 and C/VIF1 genes is significantly associated with *Populus angustifolia* resistance to a galling herbivore, *Pemphigus betae*. *Journal of Insect Physiology* 84: 50-59

Cushman SA, Max TL, Meneses N, Evans LM, Ferrier S, Honchak B, Whitham TG, Allan GJ. 2014. Landscape genetic connectivity in a riparian foundation tree is jointly driven by climatic gradients and river networks. *Ecological Applications* 24: 1000–1014.

Evans LM, Allan GJ, Meneses N, Max TL, Whitham TG. 2012. Herbivore host-associated genetic differentiation depends on the scale of plant genetic variation examined. *Evolutionary Ecology* 27: 65-81.

Meneses N, Bailey JK, Allan GJ, Bangert RK, Bowker MA, Rehill B, Wimp GM, Lindroth RL, Whitham TG. 2012. Arthropod community similarity in clonal stands of aspen: A test of the genetic similarity rule. *Ecoscience* 19: 48-58.

Bangert RK, Allan GJ, Turek RJ, Wimp GM, Meneses N, Martinsen GD, Keim P, Whitham TG. 2006. From genes to geography: a genetic similarity rule for arthropod community structure at multiple geographic scales. *Molecular Ecology* 15: 4215-4228.

Non peer-reviewed

Woolbright S, Whitham TG, Allan GJ, Meneses N, Zinkgraf M, and Bothwell H. 2008. Using Great Basin cottonwoods to study climate change and evolution. *The Midden* 8: 4-5.

In review

Meneses N, Whitham TG, Eddy EK*, Grasso S*, Floate KD, Allan GJ. Molecular genetic and phylogenetic studies of Pemphigus: Implications for species identification and biotype formation. *Bulletin of Entomological Research*

In prep.

Nimer A*, Meneses N, Watson ZD*, Shuster SM, and Benford R. The Demographics, Distribution, and Public Perception of Free-Roaming Dogs on Saipan, Northern Mariana Islands. *Journal of Applied Animal Welfare*

Peiffer J, Benford R, Meneses N. Breeding ecology of an island-endemic forest bird. *Avian Conservation and Ecology*

Meneses N, Whitham TG, Allan GJ, Floate K, Grasso S*, Eddy EK*. Genetic differentiation of an insect herbivore relative to its host tree along a 15° latitudinal gradient.

Meneses N, Whitham TG, Allan GJ, Eddy EK*, Grasso S*. Biotype formation in response to secondary but not primary host: Support for scale dependent host-associated differentiation.

*undergraduate student

Book chapter

Allan, GJ, Shuster SM, Woolbright S, Walker F, Meneses N, Keith A, Bailey J, Whitham TG. 2012. Interspecific indirect genetic effects (IIGEs): Linking genetics and genomics to community ecology and ecosystem processes. Pages 295-323 in *Trait-Mediated Indirect Interactions: Ecological and Evolutionary Perspectives* (T. Ohgushi, O. Schmitz & R. D. Holt, eds.). Cambridge University Press.

Presentations

Harrow R*, Benford R, Horncastle V, Meneses N, Chambers CL. 2016. A new method for detecting the presence of the endangered New Mexico jumping mouse. 49th Joint Annual Meeting of the Arizona-New Mexico Chapter of the American Fisheries Society and The Wildlife Society. Flagstaff, Arizona.

Garret J*, Meneses N, Benford R. 2015. History, impact, and management options for invasive vines in the Mariana Archipelago. 100th ESA Annual Meeting. Baltimore, Maryland.

Compson ZG, Ford AC, Wojtowicz T, Adams KJ, Meneses N, Whitham TG, Marks JC. 2014. Aquatic Emergent Insect Communities Are More Similar On Genetically Similar Tree Genotypes: Support For The Genetic Similarity Rule. Joint Aquatic Sciences Meeting. Portland, Oregon.

Meneses N, Allan GJ, Grasso S*, Eddy EK*, Witham TG. 2009. Genetic differentiation in a keystone herbivore; *Pemphigus betae* and cottonwoods. Cottonwood Symposium. Northern Arizona University, Flagstaff, Arizona.

Meneses N, Bailey JK, Bangert RK, Allan GJ, Rehill B, Wimp GM, Lindroth RL, Keim P, Whitham TG. 2006. La importancia de la diversidad genética y la distancia geográfica en la determinación de la composición de la comunidad de insectos. Congreso Mexicano de Ecología. Morelia, Michoacán, Mexico

Whitham TG, Stone A, Scudder CM, Gitlin AR, Sthultz CM, Trotter III RT, Meneses N, and Gehring CA. 2006. Community and evolutionary consequences of record drought in the Southwest. 33rd Annual Natural Areas Conference. Flagstaff, AZ.

Meneses N, Bailey JK, Rehill B, Lindroth R, Whitham TG, Allan GJ, and Keim P. 2005. Genetic structure in aspen structures insect communities. Evolution. Fairbanks, Alaska.

Allan GJ, Bangert RK, and Meneses N. 2005. Genetic variation in cottonwoods structures arthropod communities at local to regional scales. Evolution. Fairbanks, Alaska

Meneses N, Bailey JK, Rehill B, Lindroth R, Whitham TG, Allan G, and Keim P. 2005. Genetic structure in aspen and the implications for biodiversity. Cottonwood Symposium. Northern Arizona University, Flagstaff, AZ.

Bangert RK, Allan GJ, Rehill B, Turek RJ, Schweitzer JA, Wimp GM, Meneses N, Martinsen GD, Bailey JK, Keim P, Lindroth RL, and Whitham TG. 2005. Genes to Geography: a genetic assembly rule at multiple scales. Cottonwood Symposium, Northern Arizona University, Flagstaff, AZ.

Allan GJ, Bangert R. and Meneses N. 2005 Cottonwood Hybrid Zones: A Regional Genetic Analysis. Cottonwood Symposium, Northern Arizona University, Flagstaff, AZ.

Meneses N, Henniger EK and Reisor RS. 2002. Pinyon bark beetle host selection in a severe drought. Southwest Association of Biologists Annual Meeting, Portal, AZ.

*undergraduate student

Posters

Ares M-A*, Meneses N, Smith A, Moore A, Benford R. 2015. Molecular Identification of a Lepidopteran Herbivore on a Critically Endangered Tree. 8th Undergraduate Research and Design Symposium. College of Engineering, Forestry, and Natural Sciences. Northern Arizona University. Flagstaff, Arizona.

Ortiz L*, Meneses N, Busch J, Benford R. 2015. Genetic Variability and Population Structure of Wedge-Tailed Shearwater. 8th Undergraduate Research and Design Symposium. College of Engineering, Forestry, and Natural Sciences. Northern Arizona University. Flagstaff, Arizona.

Bertin L*, Meneses N, Benford R. 2014. The Influence of Staghorn Coral Condition on Damselfish Communities in the Saipan Lagoon. 7th Undergraduate Research and Design Symposium. College of Engineering, Forestry, and Natural Sciences. Northern Arizona University. Flagstaff, Arizona.

Darr K*, Meneses N, Benford R, Radley P. 2014. A Comparison of Bird Communities across Cover Types on the Island of Saipan. 7th Undergraduate Research and Design Symposium. College of Engineering, Forestry, and Natural Sciences. Northern Arizona University. Flagstaff, Arizona.

Garret J*, Meneses N. 2014. Effects of Invasive Vines on Habitats in Saipan. 7th Undergraduate Research and Design Symposium. College of Engineering, Forestry, and Natural Sciences. Northern Arizona University. Flagstaff, Arizona.

Petersen K*, Meneses N. 2014. Factors affecting *Trochus niloticus* populations on Saipan. 99th ESA Annual Meeting. Sacramento, California

Talley J*, Meneses M, Benford R, Harper R, Swift M. 2014. Factors Affecting Probability of Ringworm Infection in the Wedge-tailed Shearwater (*Puffinus pacificus*). 7th Undergraduate Research and Design Symposium. College of Engineering, Forestry, and Natural Sciences. Northern Arizona University. Flagstaff, Arizona.

Wilson B*, Pauling T, Van Der Maas E, Benford R, Meneses M. 2014. Demand and Proposed Methods for Local Food Production on Saipan. 7th Undergraduate Research and Design Symposium. College of Engineering, Forestry, and Natural Sciences. Northern Arizona University. Flagstaff, Arizona.

Watson Z*, Meneses N, Roof K, Brown M, Benford R. 2013. Erythrina Gall Wasp on Coral Trees Promote Visitations From Endemic Bird In Saipan. 6th Undergraduate Research and Design Symposium. College of Engineering, Forestry, and Natural Sciences. Northern Arizona University. Flagstaff, Arizona

Roof K*, Meneses N. 2013. Predation of the Small Giant Clam (*Tridacna maxima*) in Saipan. 6th Undergraduate Research and Design Symposium. College of Engineering, Forestry, and Natural Sciences. Northern Arizona University. Flagstaff, Arizona

Brown M*, Meneses N. 2013. Factors affecting nesting beach selection in green sea turtles. 6th Undergraduate Research and Design Symposium. College of Engineering, Forestry, and Natural Sciences. Northern Arizona University. Flagstaff, Arizona

Nimer A*, Watson Z, Meneses N. 2013. The Demographics, Distribution, and Public Perception of Free-Roaming Dogs on Saipan. Family Welcome Reception and Academic Showcase. Northern Arizona University. Flagstaff, Arizona

Eilers J*, Meneses N, Benford R. 2013. The Effect of Enclosure Enrichment on the Behavior of Captive Mariana Fruit Bats. 50th Annual Conference of the Animal Behavior Society. Boulder, Colorado.

Pletzer J*, Meneses N, Cobb N. 2013. Variation of Insect Abundance on Bioluminescent Fungi. Botany. New Orleans, Louisiana.

Grasso S*, Meneses N, Woolbright S, Zinkgraf M, Evans L, Max T, Bothwell H, Allan GJ, Whitham TG. 2010. DNA Marker Analysis of Relict Cottonwoods from "Sky Island" Mountain Ranges of Nevada. 16th Annual Undergraduate Research and Design Symposium. Northern Arizona University, Flagstaff.

Benford R, Meneses N, Service PM, and Balda R. 2006. Potential causes of unexpected structure in a metapopulation of pinyon jays. 24th International Ornithological Congress. 13-19 August 2006. Hamburg, Germany

Honchak BM, Allan GJ, Meneses N, Whitham TG, Shuster S, and Keim P. 2006. Does Genetic Diversity in a Dominant Tree Drive Biological Diversity? Population Genetic Structure and Diversity in a Dominant Riparian Tree. Arizona Riparian Council. Meeting. 27-29 April. Flagstaff, Arizona.

Aguirre A, Borges S, Meneses N, and Dirzo R. 2005. Effects of habitat fragmentation on floristic composition in Los Tuxtlas, Mexico. The Association for Tropical Biology and Conservation. "Frontiers in Tropical Biology and Conservation" 24-28 July. Uberlândia, Brazil.

Aguirre A, Borges de Faveri S, Meneses N, and Dirzo R. 2005. Effects of habitat fragmentation on floristic composition in Los Tuxtlas, Mexico. First DIVERSITAS Open Science Conference DIVERSITAS: OSC1 Integrating biodiversity science for human well-being. 9-12 November. Oaxaca, Mexico

Zinkgraf MS, Woolbright S, Allan GJ, Meneses N, and Whitham T. 2005. Quantitative trait loci (QTL) mapping of key ecosystem and community traits in naturally occurring cottonwood hybrid zones. Ecological Genomics Symposium. 4-6 November. Kansas.

Meneses N y Dirzo R. 2002. Biología reproductiva y un análisis del impacto de la fragmentación sobre la comunidad de insectos y el éxito reproductivo de *Bactris mexicana* en la selva de Los Tuxtlas. Poster. Regeneration Intellectual. Primer Simposio de Estudiantes. Instituto de Ecología UNAM.

Meneses N, Dirzo R. y Aguirre A. 2001. Biología reproductiva y un análisis del impacto de la fragmentación sobre el éxito reproductivo de *Bactris mexicana* en la selva de Los Tuxtlas. Poster. XV Congreso Mexicano de Botánica.

*undergraduate student

Symposium organizer

USFWS Conservation Career Symposium. September 2015, Parker, Arizona. Co-facilitator-organizer. Enrollment: 12 undergraduate and 1 graduate student

Research Symposium. Field Experience in Conservation Biology. Northern Arizona University American Memorial Park, Saipan, CNMI. March 19-20, 2014. 10 undergraduate presenters.

Conservation Research Symposium. Field Experience in Conservation Biology. Northern Arizona University American Memorial Park, Saipan, CNMI. March 22, 2013. 12 undergraduate presenters.

Technical reports

Meneses N, Shuster SM, Bulger B*, Greene R, and Benford R. 2013. Terrestrial Crab and Snail Survey. American Memorial Park, Northern Mariana Islands.

*undergraduate student

Grants, projects, and financial awards

Cobb N (Administrative PI), Shuster S, Meneses N (Project PI). 2013. Commonwealth of the Northern Mariana Island. Department of Lands and Natural Resources. Division of Fish & Wildlife. \$6,000. Terrestrial Crab and Snail Survey.

Scholarships and academic distinctions

Recognized in a Commemorative Resolution (18-2, 2013) by the Commonwealth of the Northern Mariana Islands House of Representatives for leading an outstanding research and educational program in the CNMI.

NAU – Graduate Out of State Tuition Waiver (US, 2002 – 2012)

PEO (Promotion of Educational Opportunities) – IPS (International Peace Scholarship) scholar (US, 2004 – 2005)

CONACYT (Consejo Nacional de Ciencia y Tecnología – National Council of Science and Technology) – Scholarship for Doctorate and Master Studies Abroad (Mexico, 2002 – 2007)

UNAM Foundation Program of Scholarship – Awards to distinguished UNAM students for studies abroad (Mexico, 1999)

Student Exchange Program CREPUQ (Conférence des Recteurs et des Principaux des Universités du Québec) – ANUIES (Asociación Nacional de Universidades e Instituciones de Educación Superior) (Mexico, 1999)

Invited reviewer

Forest Ecology and Management

Teaching experience

I have taught introductory to upper level undergraduate, and graduate classes, with small (<20) and large enrolment (>80). I have taught a diversity of courses covering from introductory biology labs, field labs, to molecular ecology labs, introductory statistics for majors, writing courses, seminars, and lectures. I use Blackboard Learn and Student Response Systems and apply an inquiry-based and student centered approach to expand my students' critical thinking skills.

BIO680 Biological Field Techniques (4 credits), co-instructor, Northern Arizona University, Fall 2014.

BIO599 Graduate School Success in Biology (2 credits), Northern Arizona University, Fall 2014.

BIO499 Contemporary Developments (1 credit), Northern Arizona University, Spring 2014

BIO498/698 Readings in Conservation Ecology (1 credit), Northern Arizona University, Spring 2012.

BIO498 Readings in Conservation Ecology (1 credit), Northern Arizona University, Fall 2012, Fall 2013.

BIO498 Senior Seminar (1 credit), Northern Arizona University, Fall 2013

BIO485 Independent Research, Northern Arizona University, Fall 2012, 2014; Spring 2013, 2014 (6 credits).

BIO469 Data Analysis and Representation (2 credits), Northern Arizona University, Spring 2013, 2014, 2016.

BIO467 Island Demographics and Dynamics (4 credits), Northern Arizona University, Winter 2012, 2013.

BIO365W Scientific Manuscript Preparation Junior-Level Writing (3 credits), Northern Arizona University, Fall 2014.

BIO326 Ecology (3 credits), Northern Arizona University, Fall 2013.

BIO326L Ecology Lab (1 credit), Northern Arizona University, Fall 2014 (1 section).

BIO326LW Ecology Lab Junior Writing (1 credit, 2 sections), Northern Arizona University, Spring 2011, Fall 2011, Spring 2012.

ENV326L Environmental Ecology Lab (1 credit, 2 sections), Northern Arizona University, Spring 2010.

BIO181L Unit of Life I Laboratory (1 credit, 3 sections), Northern Arizona University, Fall 2007, 2009.

Curriculum development

Undergraduate Certificate in Conservation Biology, Northern Arizona University.

BIO467/567 Island Demographics and Dynamics, Northern Arizona University.

BIO468/568 Conservation and Management of Imperiled Species, Northern Arizona University.

BIO469 Data Analysis and Representation, Northern Arizona University.

BIO365W Scientific Manuscript Preparation, Northern Arizona University.

Academic Service*Mentorship*

On average, I mentor a dozen undergraduate students per year. Most of my students have gone onto graduate school and some have started jobs as field technicians for government agencies. Currently I mentor ten undergraduate students (Copp B, Cutler N, Leivas J, Barkley K, Kane M, Poeschl M, Jones M, Harrow R, Scolman T, Calvo A).

Undergraduate research programs

Interns-to-Scholar – Mentor

Hooper Undergraduate Research Award – Mentor

Languages

English and Spanish (native)

Professional translations

Spanish subtitles. 2014. “Taking the Earth’s temperature.” IDEA Lab, Northern Arizona University

Spanish subtitles (scientific consultant). 2012. “A Thousand Invisible Cords: Connecting Genes to Ecosystems.” IDEA Lab, Northern Arizona University

Workshops

Southwestern Desert Bats. October 02-04 2015. Dr. Pat Brown. Maturango Museum. California

Volunteer

Christmas Bird Count. 2015, Gila River Indian Community; 2012, 2013 Saipan

Wild at Heart. 2015. Artificial burrowing owl nest construction

Pronghorn Capture. 2015. Telemetry, optical surveys.

References

Thomas G. Whitham, Ph. D. Regents' Professor. Northern Arizona University. (928) 523-7215.
Thomas.Whitham@nau.edu

Neil S. Cobb, Ph. D. Associate Research Professor. Merriam-Powell Center for Environmental Research, Director.
Northern Arizona University. (928) 523-5528. Neil.Cobb@nau.edu

Gerard J. Allan, Ph. D. Associate Professor. Environmental Genetics and Genomics Laboratory, Director. Northern
Arizona University. (928) 523-8934. Gery.Allan@nau.edu

Stephen Shuster, Ph. D. Professor. Northern Arizona University. (928) 523-4641. stephen.shuster@nau.edu