

Curriculum Vitae

FRANCIS XAVIER VILLABLANCA

Biological Sciences
California Polytechnic State University
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EDUCATION

1993	Ph.D.	Zoology, University of California, Berkeley.
1987	B.S.	Environmental and Systematic Biology, Cal. Poly. State University, San Luis Obispo.

PROFESSIONAL EXPERIENCE

Faculty positions

2005- <i>current</i>	Associate Professor, Biological Sciences Dept. Cal Poly San Luis Obispo.
1999-2005	Assistant Professor, Biological Sciences Dept. Cal Poly San Luis Obispo.
1998-1999	Assistant Researcher, Center for Conservation Research and Training University of Hawai'i.

Research

1996-1998	N.S.F. Postdoctoral Fellow. Multilocus Population Genetics of Endangered Black-footed Ferrets. Univ. of Hawaii.
1994-1996	Postdoctoral Research Associate: Multilocus Molecular Population Genetics. Univ. of Hawaii.
1993-1994	Postdoctoral Research Associate: Cospeciation and Molecular Evolution. Museum of Natural Science, Louisiana State Univ.
1987-1993	Doctoral Dissertation: Molecular Evolution and Population Genetics in Kangaroo Rats (Rodentia: Heteromyidae).
1986-1987	Special Problems: Captive Breeding of the Endangered Morro Bay Kangaroo Rat
1985-1987	Senior Project: Distribution and Ecology of the Morro Bay Kangaroo Rat

Curation and Museum Research

1999- <i>current</i>	Curator: Mammal and Bird Division, Natural History Museum. Cal. Poly
1993-1994	Museum Associate: Museum of Natural Sciences, Louisiana State Univ.
1988	Curatorial Assistant: Museum of Vertebrate Zoology, U. C., Berkeley.
1985-1987	Curatorial Assistant: Natural History Museum, Cal. Poly.

TEACHING

Major Courses

Systematics – Study of biological diversity and evolutionary relationships
Evolution – Study of molecular and organismal evolution
Ornithology – Study of bird diversity and ecology
Mammalogy – Study of mammal diversity and ecology
Bioinformatics – Analytical tools in genetics and applications of genetic databases
Emerging Infectious Diseases – Section on ecology and Evolution of infectious diseases
Introductory Biology Lecture– Principles of ecology and evolution section
Introductory Biology Lab – Principles of cell biology and organ systems
Hawaiian Natural History – Biology and Ecology of native Hawaiian organisms

Graduate Courses

Population Biology – Geographic and genetic study of the distribution and abundance of individuals for assessing habitat use, population structure, gene flow, demography, and population parameters.

Graduate Seminars

Cal Poly, San Luis Obispo

Topics in Spatial Ecology 2004

Computer Apps in Molecular Ecol. 2003

Topics in Bioinformatics 2002

Demography and Genetics 2002

Molecular Ecology 2001

Current Topics in Systematics 2001&'00

Advances in Ecol. and Systematics 2000

Ecological Genetics 1999

University of Hawaii

Population Genetics

Genetics of Hawaiian Diversifications

Louisiana State University

Systematics and Molecular Evolution

Molecular Evolutionary Genetics

Graduate Teaching Assistant (UCB)

Mammalogy

Ornithology

Vertebrate Natural History

Introductory Ecology

Introductory Biology

Guest Lectures

Cal Poly, San Luis Obispo

Microbial Evolution and Diversity

Plant Systematics

Evolution

Bioinformatics

Topics in Biology

Other Universities

Natural History of the Vertebrates

Hawaiian Field Biology

Conservation Biology

Molecular Systematics & Evolution

Ecological Genetics

AWARDS AND HONORS

2007	Invited Speaker	Entomological Society of America, Metapop. Symposium
2006	Sabbatical Leave	Visiting Fellow: Harvard Univ. and Univ. of Washington.
2006	Invited Review	Entomologia Experimentalis et Applicata
2006	Invited Manuscript	California Condor Conservation Genetics, Auk.
2005	Invited Speaker	Symposium presentation: American Ornithological Union.
2005	Invited Speaker	Hi Mountain Condor Lookout Symposium.
2005	Invited Review	NSF. International Fellowship Program
2005	Invited Panelist	NSF. Doctoral Dissertation Improvement Grants.
2004	Invited Review	USDA. Integrative Biology of Arthropods and Nematodes
2004	Invited Speaker	San Diego State University, Biology Dept.
2004	Invited Participant	Gordon Research Conference on Molecular Evolution.
2004	Invited Member	Scientific Advisory Team. Los Osos Habitat Cons. Plan
2003	Invited Speaker	Central Coast Biological Society
2003	Invited Review	Nat'l Fish and Wildlife Federation
2003	Invited Speaker	Central Coast Biological Society
2003	Invited Speaker	Hi Mountain Condor Lookout Symposium. Cal Poly
2002	Invited Review	Nat'l Geog. Soc. Comm. For Research and Exploration
2002	Invited Panelist	NSF. Environmental Biology - Systematic Biology
2002	Invited Speaker	Symposium in honor of James L. Patton. U.C. Berkeley
2001	Invited panelist	NSF. Population Biology - Systematic Biology
2001	Invited Panelist	NSF. Integrative Grad. Educ. & Research Traineeships
2001	Invited Panelist	NSF. Doctoral Dissertation Improvement Grants
2000	Invited Review	NSF. Population Biology - Systematic Biology
2000	Invited Speaker	CSU Regional Symposium on University Teaching
1999	Invited Review	NSF. Population Biology - Systematic Biology
1999	Invited participant	CSU Student Learning Outcomes in the Biol. Sciences
1999	Invited Review	NSF. Population Biology - Systematic Biology

GRANTS AND FELLOWSHIPS:

Research Grants Funded

<i>Pending</i>	Estimating baseline temporal trends in the abundance of migrating seabirds off Central California. P.I. D. Robinette, S. Web and F. Villablanca. Oiled Wildlife Care Network. \$149,000
<i>Pending</i>	Current abundance and distribution of the endangered Morro bay Kangaroo Rat. Preproposal USFWS. P.I. F. Villablanca. \$40,000.
2006-2008	Collaborative research on the Marine Resources of San Luis Obispo County. P.I.s D. Wendt, R. Nakamura, and F. Villablanca. Resource Legacy Fund Foundation. \$350,000.
2006-2007	Genetic and Morphological Distinction of the Morro Bay Kangaroo Rat. C.D.F.G. P.I. F. Villablanca. \$10,000.

- 2006-2007 Relationship between shrub understory management and maintenance of bird diversity and abundance on ranches in California oak woodland. P.I.s R. Barrett, B. Tietje, S. Larsen, and F. Villablanca. ANR Core Issues Grant. \$34,873
- 2005-2007 Population Genetics Structure Of The Commercially Important Cabezon Based On Multiple Loci. P.I.s R. Nakamura and F. Villablanca. SeaGrant. \$80,707.
- 2005-2006 Genetic Diversity and Genetic Distinction of the Endangered Morro Bay Kangaroo Rat. P.I. F. Villablanca. U.S. Fish and Wildlife Service. \$52,375.
- 2005-2006 Genetic Identity of newly discovered populations of the Endangered *Helminthoglypta walkeriana*. P.I. Francis Villablanca. U.S. Fish and Wildlife Service. \$42,000.
- 2005 Genetic Identification of *Reithrodontomys*: Kinder Morgan Diesel Spill. U.S. Fish and Wildlife Service. P.I. F. Villablanca. \$5,000.
- 2004-2005 Collaborative research on the Marine Resources of San Luis Obispo County. P.I. D. Wendt, R. Nakamura, J. Stephens and F. Villablanca. Resource Legacy Fund Foundation. \$167,000
- 2004-2005 Raptor Habitat selection. P.I. D. Piirto, S. Gill, F. Villablanca. Calif. Dept. of Forestry. \$30,000
- 2002-2004 Carmel River Mitigation Bank: Vertebrate Community level responses to habitat restoration. P.I. F. Villablanca. CalTrans. \$134,341
- 2003-2004 Conservation Genetics of the Salt March Harvest Mouse. P.I. F. Villablanca. Dept. Water Resources and Calif. Dept. Fish and Game. \$25,600.
- 2002-2003 Field Survey for Morro Bay Kangaroo Rats. R. Gambs and F. Villablanca. Cal. Dept. Fish & Game / U.S. Fish & Wildlife Serv. \$48,769
- 2000-2003 Conservation Genetics of the Salt March Harvest Mouse. P.I. F. Villablanca. Dept. Water Resources and Calif. Dept. Fish and Game. \$40,040.
- 2000-2001 Variability in the Life History and Reproductive Biology of Golden Mantled Ground Squirrels: What is the Mechanism Behind Bergman's Rule? P.I. F. Villablanca. Univ. Services Summer Grant, Cal Poly State Univ. \$4,925.
- 1999-2000 Phylogeography of Cryptic rat Species in Pacific Islands. Starter Research Grant. P.I. F. Villablanca. NSF, \$27,000.
- 1998 1999 Genetic and statistical analysis of invasions of exotic insect pests (renewal). P.I.s G.K. Roderick, F.X. Villablanca, and N. Davies. USDA NRI Entomology. \$109,200.
- 1998-1999 Rat Invasions in Hawai'i: Identifying the Culprits. Univ. Research Council Seed Grant. Univ. Of Hawai'i. \$13,300.
- 1996-1998 Test of DNA Analytical Techniques to Determine the Origins of Fruit Flies Colonizing California. C.D.F.A. P.I.s G. Roderick and F. Villablanca. \$154,459.
- 1996-1998 Genetic and Statistical Analysis of Invasions of Insect Pests. U.S.D.A. P.I.s G. Roderick and F. Villablanca. \$90,000.

- 1996-1998 Genetic Identification of Management Units for Economically Important Fruit Flies in Hawaii. U.S.D.A. P.I.s G. Roderick, F. Villablanca and S. Palumbi. \$179,060.
- 1991-1993 Dissertation Improvement Grant. N.S.F. \$14,000
- 1991 Research Grant-in-Aid, Sigma Xi, U.C. Berkeley Chapter. \$500
- 1991 Research Grant, Museum of Vertebrate Zoology, U.C.B. \$1,000
- 1990 Research Grant Department of Integrative Biology, U.C.B. \$1,000

Curriculum Grants Funded

- 2004-2005 Environmental Technical Studies: Project Based Internships and Research Assistantships. P.I. F. Villablanca. CalTrans. \$87,720.
- 2003-2004 Environmental Technical Studies: Internships and Research Assistantships. P.I. F. Villablanca. CalTrans. \$350,648.
- 2001 Bioinformatics Computational Resources. S. Elrod, T. Kearnes, R. Bowker, and F. Villablanca. CSUPERB, Cal. State Univ. \$44,130.
- 2000 Bioinformatics course development at Cal Poly San Luis Obispo: contributing to system-wide curricula in Biotechnology. P.I.s F. Villablanca, T. Kearns. CSUPERB, Cal. State Univ. \$20,000.
- 1999 Grant in aid of Education. P.I. F. Villablanca. Duke Energy, \$500
- 1998 Equipment Grant: Genotype Analysis of Exotic Pests and Natural Enemies. P.I.s G.K. Roderick, R.G. Gillespie, and F.X. Villablanca. USDA NRI, \$32,500 (\$32,500 institutional matching).

Fellowships

- 1996-1998 N.S.F. Postdoctoral Fellowship. \$80,000
- 1989-1992 N.S.F. Graduate Fellowship. \$37,000
- 1991 Woods Hole Marine Biol. Lab, Molecular Evolution Fellowship. \$2,500
- 1987-1988 U.C., Berkeley, Dept of Zoology, Minority Graduate Opportunity Fellowship. \$5,500

PUBLICATIONS

- 2007 Adams, M.S. and F.X. Villablanca. Genetic diversity in the endangered California Condor: a mtDNA perspective. In Press *in: Condors in the 21st Century*. (A. Mee and L. Hall *Eds*). Special Publication of the American Ornithological Union, Series in Ornithology, no. 2:35-55.
- 2001 Bohonak A.J., Davies N., Villablanca F.X., and Roderick G.K. Invasions genetics of New World medflies: testing alternative colonization scenarios. ***Biological Invasions***. 3:103-111.
- Matocq, M. and F. Villablanca. Low genetic diversity in an endangered species: recent or historical pattern? ***Biological Conservation*** 98(1): 61-68.

- 1999 Davies N., Roderick G.K., Villablanca F.X., and S.R. Palumbi. Determining the sources of individuals in recently founded populations: multilocus genotyping in non-equilibrium genetics. *Trends in Ecology and Evolution*. 14:17-21
- Davies N., Villablanca F.X, and Roderick G.K. Bioinvasions of the Medfly, *Ceratitic capitata*: Source estimation using DNA sequences at multiple intron loci. *Genetics*. 153:351-360.
- Roderick, G., Davies, N., Palumbi, S.R., Bohonak, A.J., and F.X. Villablanca. Statistical Methods to Examine Invasions of Medflies using DNA Sequence Data. In: Proceedings of the Exotic Fruit Fly Research Symposium (eds. Morse J.G. and Dowell R.V.). University of California, Riverside. 2:128-135.
- 1998 Villablanca, F.X., G.K. Roderick, and S.P. Palumbi. Invasion Genetics of the Mediterranean Fruit Fly: Variation in Multiple Nuclear Introns. *Molecular Ecology*. 7:351-365.
- Bohonak A.J., Davies N., Roderick G.K., and Villablanca F.X. Population genetics: mired in the past? *Trends in Ecology and Evolution*. 13:306.
- Roderick, G., Davies, N., Palumbi, S.R., Bohonak, A.J., and F.X. Villablanca. Origins of Medflies trapped in California. In: Proceedings of the Exotic Fruit Fly Research Symposium (eds. Morse J.G. and Dowell R.V.). University of California, Riverside. Pp.21-27.
- Roderick G.K., Davies N., Bohonak A.J., and Villablanca F.X. The interface of population genetics and systematics: Invasion genetics of the Mediterranean fruit fly (*Ceratitis capitata*). In: Proceedings of the 6th Australasian Applied Entomological Research Conference (eds. Zalucki, M.P., Drew, R.A.I and White, G.G.). University of Queensland, Brisbane, Australia. Pp 489-499.
- 1996 Roderick, G.K. and F.X. Villablanca. Genetic and Statistical Analysis of Colonization. *Fruit Fly Pests: A World Assesment of Their Biology and Management*, (eds. McPheron B.A, Steck G.J.). Pp 281-290
- 1994 Hafner, M.S., P. Sudman, F.X. Villablanca, T. Spradling, J.W. Demastes, and S.A. Nadler. Disparate Rates of Molecular Evolution in Cospeciating Hosts and Parasites. *Science*. 265:1087-1090
- Villablanca, F.X. Evolutionary Analysis: Spatial and Temporal Aspects of Populations Revealed by Mitochondrial DNA. In *Ancient DNA*. B. Heermann and S. Hummel (Ed.). Springer- Verlag, N.Y. pp. 31-58.
- 1990 Thomas, W.K., S. Paabo, F.X. Villablanca, and A.C. Wilson. Spatial and Temporal Continuity of Kangaroo Rat Populations Shown by Sequencing

Mitochondrial DNA from Museum Specimens. *Journal of Molecular Evolution*. 31:101-112

- 1989 Kocher, T.D., W.K. Thomas, A. Meyer, S.V. Edwards, S. Paabo, F.X. Villablanca, and A.C. Wilson. Dynamics of Mitochondrial DNA Evolution in Animals: Amplification and Sequencing With Conserved Primers. *Proc. Natl. Acad. Sci. USA*. 86:6196-6200.

Manuscript in preparation – with collaborators

Conant, S., F.X. Villablanca, M. Moran. Geographic variation of the Laysan Finch revisited. (*Evolutionary Ecology*).

Kenagy, G.J., and F.X. Villablanca. Geographic isolation of the ground squirrel *S. lateralis* in the Northern Cascades: phylogeographic evidence for the role of mountains and rivers. (*Journal of Mammalogy*)

Manuscripts in preparation or submitted - Cal Poly Graduate Student Thesis Work

Ellison, J and F. Villablanca. Demographic trends in a breeding population of Snowy Plovers. (*in revision to the Auk*)

Ellison, J and F. Villablanca. Nest site selection and nesting success in a coastal population of Snowy Plovers. (*J. of Field Ornithology*)

Brown, S. and F. Villablanca. Genetic tests of hybridization between endangered *Reithrodontomys raviventris* and non endangered *Reithrodontomys megalotis*. (*Biological Conservation*).

Brown, S and F. Villablanca. Genetic and morphological identification of an endangered species (*Reithrodontomys raviventris*). (*Conservation Genetics*).

Gerdes, N. and F. Villablanca. Geographic variation in body size and litter size in the Golden-mantelled ground squirrel (*Spermophilus saturatus* and *S. lateralis*). (*J.of Mammalogy*).

ORGANIZATIONAL SERVICE

Department Committees and Activities

2007-2008	Chair, Curriculum Committee
2005- present	Personnel Committee
2005	Administrative Analyst Search Committee
2004-2006	Student Services Committee.

2004-present	Introductory Biology Teaching Collaboratives
2004-2005	Curriculum Committee
2003-2004	Chair, Conservation Biologist Search Committee
2003-2004	Associate Chair: Ecology and Systematic Biology Degree.
2002-2003	Introductory Biology Curriculum Committee.
2002-2003	Chair, Conservation Biologist Search Committee.
1999-2003	Student Services Committee.
2002-2003	Student Advisory Committee: senior project.
2001	Chair, Administrative Analyst Search Committee
2000-2001	Cell Biology Search Committee.
2000-present	Campus Biology Committee
1999-present	Curator of Birds and Mammals
1999-present	Co-advisor, Cal Poly Wildlife club
1999-present	Academic Advisor
1999-2004	Chair, Systematics Collections Comm.

University Committees and Activities

2006-present	Coordinator Instructionally Related Activities: Env. Career Symp.
2002-2003	Marine Science Advisory Council
2001-2002	Internet II representative COSAM
2000-2004	Research and Professional Development Comm., Academic Senate.
2000-present	Cal Poly Biotech Advisory Committee
1999-present	Biology Advisory Committee.

Academic and Community Service

2004-present	Board of Directors, SLO Botanical Gardens
2003-present	Leader, Morro Bay Kangaroo Rat Recovery Team, U.S.F.W.S
2000-present	Core Facility Committee, Calif. State Univ. Prog. for Education and Research in Biotechnology (CSUPERB).
1999-2002	Conservation Committee: Morro Coast Audubon Society
1999-2000	Board of Directors. Central Coast Biological Society
1996-1999	Interim Comm. on Human Res., Amer. Soc., of Mammalogists
1993-1998	Chair, Consumptive Sampling Subcomm., Systematics Collections
1993-1994	Co-director Molecular Evol. Research Group, Louisiana State Univ.
1992-2003	Member Morro Bay Kangaroo Rat Recovery Team, U.S.F.W.S.
1990-1996	Edu. and Grad. Students Comm., Amer. Soc. of Mammalogists.
1990-1991	Grad. Student Rep., Dept of Integ. Biol., U.C., Berkeley,
1989-1990	Academic Prog. Committee, Dept of Integ. Biol., U.C., Berkeley.
1987-present	Biological Consulting: Biodiversity Surveys of Calif. Vertebrates.

Manuscript Reviews

1999	Journal of Archaeological Science
1999	Molecular Phylogenetics and Evolution

1999	Science
2000	Evolution
2000	American Naturalist
2000	Molecular Ecology
2001	Evolution
2001	Molecular Ecology
2002	Molecular Ecology
2002	Annals of the Entomological Society of America
2003	Molecular Ecology
2003	Animal Conservation
2004	Evolution
2004	Molecular Ecology
2005	Conservation genetics
2005	Molecular Ecology
2006	Entomologia Experimentalis et Applicata

PRESENTATIONS WITH STUDENTS

2007	Profile Of Estero Bay Seabird Community During Periods Of Pacific Decadal Oscillation Phase Change. Pacific Seabird Group. Presenter: Katie Gordon.
2007	Local Primary Productivity Reflected In Seabird Abundance And Diversity In A Nearshore Environment. Pacific seabird Group. Presented: Jessie Rountree.
2006	Nest survivorship in a California Warbling Vireo population: low all around. Western Section of the Wildlife Society. Presenter: Erica Lindgren
2006	Changes in the pelagic bird community of Estero Bay. Marine Interest Group quarterly meeting. Morro Bay, CA. F.X. Villablanca Presenting.
2006	Seventies Flashback: changes in the seabird community of Estero Bay. Pacific Seabird Meeting, Anchorage AK. Presented Katie Gordon.
2006	Genetic Diversity in the Morro Bay Kangaroo Rat. Research Conference: College of Science and Math. M. Kornbluth presenter.
2005	Bird acoustics: windows into identification and behavior. 10 th annual Morro Bay Bird Festival. Morro Bay, CA. F. X. Villablanca Presenting.
2005	Genetic distinctness of an endangered species of kangaroo rat and a closely related non-endangered subspecies. Bay Area Conservation Biology Symposium. San Francisco. Presenter: Megan Kornbluth
2005	Genetic variation in the California Condor over the past century: the use of museums specimens to measure the effect of a population bottleneck. 123rd Meeting of the American Ornithologists' Union Symposium D. Santa Barbara, CA. Endangered species recovery: the California Condor as a model (organizer A. Mee). Presenter: Neil Clipperton.
2005	Low nest survivorship in a coastal California Warbling Vireo population. 123rd Meeting of the American Ornithologists' Union. Santa Barbara CA. Presenter: Erica Lindgren

- 2004 Differentiating Salt Marsh Harvest Mice (*Reithrodontomys raviventris*) From Western Harvest Mice (*R. megalotis*) Using Morphological and Genetic Data. Bay Area Cons. Biol. Symposium. Presenter: Sarah Brown
- 2003 Conservation Genetics of the Salt Marsh Harvest Mouse. Society for Conservation Biology Annual Meeting. Presenter: Sarah Brown.
- 2003 History and Restoration of a Fire Lookout in the Los Padres National Forest a Collaborative Venture. Central Coast Biological Society. Presenter: Michaela Koenig.
- 2003 Radio Telemetry Research and the California Condor Recovery Plan Central Coast Biological Society. Presenter: Holly Messer.
- 2003 California Condor Habitat Use and Its Implications. Central Coast Biological Society. Presenter: Lisa Andreano.
- 2003 Plant Community Composition from an Ethnobotanical Perspective. Central Coast Biological Society. Presenter: Daniel Bohlman.
- 2003 Conservation Genetics of the Salt Marsh Harvest Mouse. California Department of Fish and Game/ Ca. Department of Water Resources Joint Meeting. Presenter: Sarah Brown.

SYMPOSIA ORGANIZED

Invasion Genetics: Sorting ancestral polymorphism and the recovery of population and species level relationships. XXI International Congress of Entomology. Sao Pablo Brazil. 2000.

Conservation of California Condors: Status and Research Symposium. Cal Poly State University, S.L.O. 2003

Agency Collaboration: California Condor Recovery Program. Cal Poly State University, S.L.O. 2004.

PROFESSIONAL SOCIETY MEMBERSHIPS

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| 2006-current | Pacific Seabird Group |
| 2000-current | Society of Molecular Ecologists |
| 1999-current | Central Coast Biological Society |
| 1991-current | American Association for the Advancement of Science. |
| 1990-current | Society for Molecular Biology and Evolution. |
| 1989-current | Society for the Study of Evolution. |
| 1989-current | Society of Systematic Biologists. |
| 1988-2002 | California Botanical Society |
| 1987-current | American Society of Mammalogists. |

GRADUATE THESIS ADVISOR

Graduated

Jennifer Ellison (Comm. College Inst)
Nora Gerdes (Ph.D. Stud. Auburn Univ)
Mike Kelly (Comm. College Inst)
Mary Adams (Water Qual. Control Brd.)
Sarah Brown (Ph.D. Student. UC Davis)
Aaron Floyd (Biologist Salmon Enhancement Program)
Dwayne Oberhoff (Calif. Dept. Fish and Game, Warden)
Erica Lindgren (Biological Consultant)
Neil Clipperton (Calif. Dept. Fish and Game Biologist)
Katherine Gordon (Consultant)
Todd Olive (Research and Production, Enzyme Genetics Lab)
Jennifer Moonjian (Calif. Dept. Fish and Game Biologist)
Megan Kornbluth (Research Lab Tech., UC Santa Barbara)
Dan Berman (Director Morro Bay Estuary program)

Current

Dan Berman

GRADUATE THESIS COMMITTEE MEMBER**Graduated**

Jill Bushakra (Comm. College Inst.)
Clay Fletcher (State Parks Biologist).
Danny Fry (Assistant Researcher U.C. Berkeley)
Mary Lea (United States Fish and Wildlife Service, Biologist)

Current

Gregory Wagner

RESEARCH INTERESTS**Molecular and organismal evolution.**

- 1) Molecular evolution, phylogeny reconstruction, recombination and phylogenetics, estimation of molecular population parameters.
- 2) Conservation genetics, invasion genetics, and population genetic structure.
- 3) Evolution of life history traits in birds and mammals.
- 4) Evolution by isometry and allometry, morphometrics.

Demography

- 1) Conservation biology including translocation, captive breeding, & reintroductions
- 2) Ecological and evolutionary consequences of changing population size including census and effective population size, genetic drift and genetic draft, adaptation and responses to disturbance.
- 3) Avian demography especially in response to restoration and predation.

Ecology

- 1) Habitat utilization and ecological engineering by kangaroo rats (*Dipodomys*).
- 2) Habitat utilization and extinction factors in California Condors.
- 3) Long term avian and mammalian abundance and diversity in coastal sage scrub, coastal chaparral and Morro Bay's near shore seabirds community.