The Burrowing Owl project funded by the DoD Legacy program has been very successful at bringing together a wide diversity of project partners on this continental-scale project. We had 39 DoD installations that participated as project partners, 16 partner organizations in the U.S. and Canada, and 17 partner organizations in Mexico. These partners contributed $416,918 in actual dollars to the project and they provided >$100,000 in in-kind contributions (use of field vehicles, conducting surveys, trapping owls, collecting feather and blood samples, etc.). The project also generated many products thus far: 10 papers published in peer-reviewed scientific journals, 4 graduate theses, 16 technical reports, 13 DoD technical products (protocols, fact sheets, etc), 8 articles/programs in the popular press, 40 presentations at regional, national, and international meetings, 17 awards given to graduate students on the project, and substantial technical assistance. Below is a list of these products and partners:

**Peer-reviewed Publications**


5. Lantz, S. J., and C. J. Conway. 2009. Factors affecting daily nest survival of burrowing owls within black-tailed prairie dog colonies. *Journal of Wildlife Management* 73:232-241. (this article was selected by the editor as the feature article for the issue’s cover).


**Theses**


**Technical Reports**


Cruz-McDonnell, K. and O. Cruz-Carretero. 2007. Surveys for wintering Burrowing Owls (*Athene cunicularia*) in southern New Mexico, the Texas Coastal Bend, and northern Mexico. Albuquerque, NM. Envirological Services, Inc.


**Technical Products to DoD:**


**Popular Articles and Press:**


Pach, M. J. 2007. Owl research is a hoot. Fort Carson Mountaineer 65:26-27. (Newspaper article in Fort Carson, Colorado on 13 July 2007 featured text and 7 color pictures explaining the goals and field methods involved with our research project examining migratory linkages of burrowing owls across western North America.).


The Tri-City Herald (one of the 2 largest newspapers in eastern Washington) ran a front-page story explaining how our research on Burrowing Owls in eastern Washington is helping state and federal land management agencies in the region set policy for this species of management concern (“Burrowing Owls Face Uncertain Future”). 15 Aug 2005.

Article appeared in one of Seattle’s largest morning newspapers (the Seattle Post-Intelligencer) that highlighted our research on burrowing owls in eastern Washington. 17 Jul 2004.

Northwest Public Radio visited one of our study sites and did a 6-minute story “Burrowing Owl Habitat Threatened by Development” on their program Morning Edition. The radio piece highlighted how our project was helping land management agencies in the region resolve problems caused by urban development. 15 Mar 2004.
Technical Presentations


McDonnell, K., O. Cruz-Carretero, C. Finley. 2007. Migratory Linkages of Burrowing


**Awards/Grants received by graduate students on project**

Mark Ogonowski received a 2006 Travel Grant from the Graduate and Professional Student Council, University of Arizona.
Mark Ogonowski received a 2006 Silliman Memorial Research Award in Ornithology, The University of Arizona.

Mark Ogonowski received a 2006 CATTS Fellowship from the University of Arizona helping deliver professional development workshops for elementary science teachers.

Mark Ogonowski received a STAR Fellowship (Science to Achieve Results) from the U.S. Environmental Protection Agency, 2004-05.

Mark Ogonowski received a 2004 Budweiser National Conservation Scholarship from the National Fish and Wildlife Foundation.

Alberto Macias-Duarte received a 2008-2009 BioME - iPlant Collaborative Graduate Fellowship. BIO5 Institute. The University of Arizona.

Alberto Macias-Duarte received a 2007 William Calder III Memorial Scholarship from the Department of Ecology and Evolutionary Biology at the University of Arizona.

Alberto Macias Duarte received a 2008 Travel Grant from the Graduate and Professional Student Council, University of Arizona.

Alberto Macias-Duarte received a 2007 International Wildlife Foundation Scholarship, College of Agriculture and Life Sciences, The University of Arizona.

Alberto Macias-Duarte received a 2006 William Calder III Memorial Scholarship from the Department of Ecology and Evolutionary Biology at the University of Arizona.

Alberto Macias-Duarte received a 2006 Silliman Memorial Research Award in Ornithology, The University of Arizona.

Alberto Macias-Duarte received a 2006 Student Research Award from the American Ornithologists’ Union.

Alberto Macias-Duarte received a 2006-07 Tuition and Registration Scholarship from University of Arizona’s Graduate College based on meritorious academic achievements

Alberto Macias-Duarte received a 2005 Tinker Research Award from the Center for Latin America Studies of the University of Arizona.

Alberto Macias-Duarte received a 2004 Russell E. Train Scholarship from the World Wildlife Fund.

Alberto Macias-Duarte received a 2004 Graduate Tuition Scholarship from the University of Arizona.
Alberto Macias-Duarte received a 2003-2007 CONACYT Graduate Fellowship from the Mexican government.

**Advice/Technical Support:**

Many DoD installations have asked us to provide guidance on issues related to burrowing owl management on airfields and many have enquired about the results of the genetic and stable isotope analyses.

3 DoD installations approached us to produce/provide additional products related to burrowing owls on their installations: 1) Naval Base Coronado had us write a 10-year management plan for burrowing owls and conduct detailed surveys, banding, and monitoring of the owls on their base due to management challenges that arose when the burrowing owls would occasionally forage at the California Least Tern colony; 2) Naval Air Station Lemoore had us produce a review document summarizing the frequency of deformities observed in burrowing owl populations to determine whether the frequency observed at Navy Air Station Lemoore was higher than elsewhere within their breeding range, 3) M. Ogonowski and C. Conway were asked to serve an advisory role to the Bird Hazards Working Group at Davis-Monthan Air Force Base to review status of burrowing owls and success of efforts to reduce bird hazards to aircraft on the Base.

We developed and put-on many training workshops attended by >20 biologists from Department of Defense from across the western U.S. Handled all aspects of organization, logistics, and training associated with the workshop.

We organized the *Third International Burrowing Owl Symposium* at the North American Ornithological Conference in Veracruz, Mexico. The symposium was a full-day of presentations and round-table discussions on the conservation, management, and ecology of Burrowing Owls in North America. 3 October 2006.

We have contributed to the Sonoran Joint Venture conservation plan. A. Macias-Duarte has gone to all technical committee meetings and participated in the writing of a part of the plan (the Mexican highlands section). At the most recent SJV meeting in Sonora, Mexico, he gave a presentation to agencies from both the federal (from Mexico City) and state levels in both Mexico and the U.S. (presented in both English and Spanish).

We were invited to participate and present a talk at the Working Group for the West Mojave Conservation Plan. C.Conway was invited as 1 of 3 external experts on the Burrowing Owl to provide expert opinion to the Working Group which consists of representatives from city, county, state (CDFG), and federal governments (USFWS, BLM). San Bernardino, CA, 23 June 2008.

C. Conway was invited as 1 of 12 experts from Canada, the U.S., and Mexico to develop a North American Conservation Action Plan (NACAP) for Burrowing Owls by the Tri-national Commission for Environmental Cooperation. Asked to be the U.S. lead scientist at a 3-day workshop in Calgary, Alberta to outline the conservation plan. Presented an overview
of the most important management issues related to Burrowing Owls in the U.S. Burrowing owls are listed as 1 of only 6 priority species in the North American Trilateral Agreement.

We were asked to review and comment on the state-wide guidelines for survey protocols and mitigation measures for burrowing owls in New Mexico by the New Mexico Game and Fish Department and in Arizona by the Arizona Game and Fish Department.

We were asked by the Colorado Division of Wildlife to provide advice on burrowing owl survey methods suitable to ensure NEPA clearance.

**U.S. and Canadian Partners and Their Contributions**

- U.S. Geological Survey (field vehicles, C Conway salary) - $52,000
- U.S. Environmental Protection Agency (funds) - $70,082
- National Fish and Wildlife Foundation (funds) - $40,000
- World Wildlife Fund (funds) - $22,000
- U.S. Fish and Wildlife Service (funds) - $12,500
- National Park Service (funds) - $10,000
- U.S. Department of Energy (field work to collect samples) - $3,000
- Arizona Game and Fish Department (funds) - $1,000
- City of Tucson (funds) - $24,998
- American Ornithologists’ Union (funds) - $1,800
- T&E, Inc. (funds) - $4,900
- CH2MHill (funds) - $42,500
- University of Arizona (grad student fellowships, field vehicles, funds) – $162,138
- New Mexico State University (field work to collect samples) - $9,000
- University of Alberta (field work to collect samples) - $1,500
- Canadian Wildlife Service (field work to collect samples) - $7,500
- 39 DoD installations in 9 western states have provided time, access, permits, and field assistance: Barry M. Goldwater Air Force Range, Boardman Bombing Range, Buckley AFB, Camp Guernsey, Camp Pendleton, Canon AFB, China Lake Naval Weapons Station, Davis-Monthan AFB, Dixon Navy Radio Transmitter Facility, Dugway Proving Ground, Edwards AFB, El Centro NAF, Fallbrook Naval Weapons Station, FE Warren AFB, Fort Bliss AFB, Fort Carson, Fort Irwin, Ft Bliss, Hill AFB, Holloman AFB, Kirtland AFB, Lovell Training Area, March JARB, MCLB Barstow, Mountain Home AFB, NAS Lemoore, Naval Base Coronado, Nellis AFB, Orchard Training Range, Pinon Canyon Maneuver Site, Pueblo Chemical Depot, Schriever AFB, Seal Beach Naval Weapons Station, Sharpe Depot in Lathrop, Sheridan Training Area, Travis AFB, White Sands Missile Range, Yuma Marine Corps Air Station, and Yuma Proving Ground.

**Collaborators/Partners in Mexico**

- National Council of Science and Technology in Mexico (funds) - $106,540
- Universidad Autonoma de Nuevo Leon (field work to collect samples)
Colegio de Posgraduados (field work to collect samples)
Universidad Autonoma de Baja California Sur (field work to collect samples)
Universidad Autonoma de Nuevo Leon ornithology lab (4 collaborators for field surveys)
Colegio de Post-graduados Campus Texcoco (2 collaborators for field surveys)
Procuraduría Estatal de Protección al Ambiente de Aguascalientes (2 government employees for field surveys)
Centro de Ecología Regional, A.C (8 collaborators for field surveys)
Faunotica A.C. (4 collaborators for field surveys)
Pronatura A.C. (1 collaborator for field surveys)
Tierra de Aves A.C. (1 collaborator for field surveys)
Museo Comunitario de la Fauna de Veracruz (1 collaborator for field surveys)
Pronatura Noreste A.C. (1 collaborator for field surveys)
Veracruz Falconry Club (1 collaborator for field surveys)
Jalisco Falconry Club (1 collaborator for field surveys)
Toluca Falconry Club (1 collaborator for field surveys)