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2006 Annual Report

Donald Duszynski

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2006 Annual Report Museum of Southwestern Biology

Donald Duszynski, MSB Director

September 2006

**Museum of Southwestern Biology
Annual Report for 2006**

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MUSEUM OF SOUTHWESTERN BIOLOGY

ANNUAL REPORT FOR 2006

DIRECTOR'S SUMMARY

In December 2006, I completed my first 18 months as Director and the MSB Curators endured their first full year with a non-curator as Director. Things seem to be coming together in that the invisible partitions between the various divisions are beginning to blur and more of a “museum” attitude is developing. Almost all our divisions of the MSB had an even more remarkable year in personal accomplishments and productivity than they did in 2005.

As stated in our 2004 Annual Report, MSB now does only one report, an AY report for the previous year, for both the College and the Department. This makes sense to us for reasons stated in that report. Thus, MSB's mid-year report for the College (due in October) summarizes only the previous year, from January 1 through December 31 and this report lists all accomplishments of the MSB faculty, staff, and students for 2006.

Many of the building errors and substandard construction issues that occurred in the renovation of CERIA, as summarized in my 2005 Annual Report, either were fixed or the funding is now in place to make the corrections and the remaining work is in the planning stage or in progress. Those repairs that have been completed include:

- Purchased 17 FUMEX point-exhaust arms, nozzles, connectors to fit the refurbished 4” ducts in 5 labs;
- Removed acid dilution tank from hallway in the basement;
- Completed installation of a new, 6 inch, reinforced concrete loading dock;
- Completed construction of the outside storage sheds both for flammable liquids and field equipment;
- Installed new dome fan (ER-3) on the roof to so that exhaust of the hood above the kettle (dirty prep lab, room 237) could draw and circulate air properly and could be certified by SHEA;
- Added new signage to 3 floors of the building;
- Painted walls and tiled floors in front entrance staircase;
- Repaired (some) roof leaks;
- Purchased miscellaneous office furniture.

Those repairs that either are in the planning stage or in the process of completion include:

- Adding our 5 data storage/server rooms to the emergency generator;
- Reducting and reventilating HVAC system in the basement including: new dampers and actuators, and 3 new, larger exhaust fans (due to be installed 07/21/07);
- Upgrading CERIA's security system with 3 additional card readers;
- Retrofitting room 125 from a classroom/conference room to a second fluid storage room for stainless steel tanks (to alleviate congestion of these tanks occupying floor space in our wet collections lab, room 145); Mark Manzutto is working on the drawings for the storage racks;

- Working with Joe Brawley to look at portable storage units to solve the problem posed by where the” bugs” (dermestid colonies) should be housed.

The MSB hosted two important events in 2006. The first was the combined meeting of the Society for the Preservation of Natural History Collections (SPNHC) and the Natural Science Collections Alliance (NSCA), 23-27 May. The theme was “The Road to Productive Partnerships” with a focus on the various local, state and federal agencies we work with for collection permits, curation and loan of specimens, and reports of locality information for museum and agency databases. Several of our Collection Managers, especially, Jane Mygatt (Herbarium), Cindy Ramotnik (USGS), Cheryl Parmenter (Genomic Resources), Dave Lightfoot and Sandy Brantley (Arthropods), and Tom Giermakowski (Amphibians & Reptiles), along with graduate student Chris Frazier, did the majority of the work in coordinating this important event. Cindy, Cheryl and Jane served as the meeting co-organizers, Dave and Sandy led field trips to the Sandia Mountains to visit plants and animals associated with the 4 life zones there, Chris and Tom were crucial to the success of the meetings in providing webmaster skills, program and workshop development, and coordinating speakers and presentations. The venue for this meeting was the historic Hotel Albuquerque in Old Town and the meeting attracted a record number of attendees and highlighted collaborative efforts of scientific collections with other museums, state and government organizations, private entities, and international groups.

On October 8, MSB hosted the Gala Building Dedication/Open House of CERIA. Ably assisted by MSB Group Administrator, Cathy Osborn, we met regularly to plan, consult, set up committee structure, and design infrastructure; we then worked as closely as we could with MSB personnel in all divisions and with Susan Dever in Media Arts, Ed Angel in Art Technology, Bob Waide in the LTER Network Office, Scott Collins in the Sevilleta LTER Office, Terry Yates in the VPR Office, Jane Slaughter in A&S, Sachi Isobe and Debbie Dobson in A&S/Development, and others. Several hundred visitors, a good number from other Universities, attended this historic event. The program included an opening welcome buffet and drinks, then remarks by Terry Yates, Vice President for Research and Economic Development, Vera Norwood, Interim Dean, College of Arts and Sciences, and Christopher Mead, Dean, College of Fine Arts. During this formal part of the ceremony, Dr. Robert Baker, Horn Professor of Biology, Texas Tech University, presented MSB Director Duszynski with a commemorative plaque that read, “Congratulations, Museum of Southwestern Biology, on the Grand Opening of a Magnificent New Museum Facility. From your friends and colleagues at The Museum, Texas Tech University, 8 October 2006.” Following the formal dedication ceremony each unit in CERIA had a variety of PowerPoint® presentations, videos, talks, and displays.

Those contributed by our MSB divisions included:

Amphibians & Reptiles

Mapping New Mexico’s Herpetological Diversity: Where are the State’s Amphibians and Reptiles?

25 Years of MSB collaboration in the Galápagos Islands of Ecuador.

Arthropods

Research and Outreach

Birds

MSB Bird Collection: 130 Years of Ornithology in the Southwest

Fishes

The Role of the MSB Division of Fishes in Conservation of New Mexico's Fishes

Genomic Resources

A Visual Presentation of the Procedures and Projects of the Division of Genomic Resources

Herbarium

Flora of the Middle Rio Grande

Mammals

Overview of the MSB Division of Mammals and the Importance of Natural History Collections

Mammalian Diversity in New Mexico

Museum Voucher Specimen Preparation

Natural History Collections and Game Management

Natural Heritage New Mexico

NHNM: Providing Education, Research, and Information on New Mexico's Biodiversity

United States Geological Survey

The Role of Natural History Collections in the USGS

In September, Diana Northup, Editor of the MSB Publication Series, decided she was overcommitted and no longer could perform the duties of this (lavishly unpaid) office. At the time of her resignation, there were 4 manuscripts in the pipeline (Sivinski, Dickerman, MacDonald and Cook, Hope and Parmenter). In a memo (9/20/06) to the Curators I expressed the urgency of the situation and I put forth the name of Lee Couch for them to consider as the new Publication Series Editor, with the statement, she “is one of the most competent people I know, with a very critical eye for detail in editing documents.” In a subsequent meeting in October, the Curators unanimously approved Lee as the Interim Editor. Since then she has shepherded these 4 manuscripts through to electronic publication (PDFs on our web site) and she also has corrected the many mistakes in the original manuscript of John Hubbard's 2002 Occasional Paper (No. 9) and put her revised PDF version on our web site.

MSB is sorely lacking in not having any financial resources (from A&S/UNM) to support 2 critical positions: 1) a building manager to take care of the day-to-day operation of the complexities of CERIA; and 2) our data management infrastructure—there is no coherent, unified (unification may not be critical), structured plan for such things as data security, data backup/management, systems maintenance, IT innovation, trouble shooting viruses/worms, purchasing hardware and software, and more.

Through the effort of Cathy Osborn, MSB web pages have been updated, all prior (hard copy) publications of the MSB Publication series have been added to our MSB Publication series web page (<http://www.msb.unm.edu/publications/publications.html>) and the web pages of all divisions have been unified, to some degree.

All of our divisions have accomplishments that are noteworthy, but I would like to highlight one here which I think epitomizes what the MSB is all about. That is the completion of the Undergraduate Mentorships in Environmental Biology (UMEB) Program that is detailed in the report of the Division of Mammals. This grant, which provided substantial support for student education and employment was conducted in collaboration with the Sevilleta Long Term Ecological Research (LTER) Program. The goals of the program were to: (1) instruct undergraduates in the principles of scientific research; (2) expose students to ecological research techniques and career opportunities; (3) facilitate individual student research projects; and (4) encourage students to continue scientific education in upper-division courses and graduate school. To accomplish these goals, the program included: (1) orientation meetings devoted to ecological research at the Sevilleta and MSB; (2) faculty-student one-on-one instruction of hypothesis development and research protocols; (3) field and laboratory experiences in sampling and data collection; (4) implementation of student research projects, carried out under the guidance of student-selected faculty; (5) a UMEB Symposium for project presentations, (6) attendance at scientific meetings; and (7) preparation and submission of project manuscripts for Senior Honors Theses and, when appropriate, scientific journals. These activities integrated all theoretical and technical aspects of the LTER and MSB, and promoted a holistic approach to large-scale ecological studies. What is especially noteworthy about this program was the success of its 56 student participants. To date, 45 received their B.S. degrees (80%), including 11 Native Americans (19%, 7 graduated to date), 15 Anglos (27%, 11 graduated), 31 Hispanics (55%, 26 graduated), and 2 African American (3.6%). Overall, we expect that 48/56 participants (88%) will earn a B.S. degree, a much higher percentage than their non-program peers at UNM (graduation rate 46%).

The MSB continued to make major advances and accomplishments in all areas within its mission in 2006:

Visitors to the MSB (637). Annual visitors to the various divisions of the MSB consist mostly of research scientists from around the world, but with a small number of the general public sometimes interested in looking around and/or getting information. The number reported is for the divisions housed in CERIA, with those visitors coming to see personnel of the USGS logged into either the mammal or bird counting systems.

Peer-reviewed publications (62). These include 53 scholarly articles in refereed journals, 4 chapters published in different scholarly books, 1 lab manual, and 4 web based publications or compendia.

Technical reports completed (35). Some of our divisions, especially NHHM and USGS, are more likely to get funding for their scholarly activities from contracts through numerous federal and state governmental agencies. Such agencies require final Technical Reports to be written and the

writing of these reports is no less time-consuming than that needed to produce a quality peer-reviewed publication.

Presentations/posters at national and international meetings (83+). Many of the faculty, staff and students associated with the 9 divisions in the MSB attend professional meetings and present the results of their research in the form of oral presentations and posters while others, because of their reputations or expertise, are asked to give seminars at other universities or government agencies. Some, principally VPR Terry Yates, present so many invited talks annually, that he is unable to record them other than listing “many.” Thus, in 2006, MSB faculty, students and staff presented 18+ invited lectures and (minimally) 65+ presentations and posters at many meetings/venues throughout the world.

UNM courses using MSB collection materials for their teaching (25+). Many courses, taught at UNM, some with multiple sections both in Biology and in other departments and colleges, use specimens and/or data from one or more of our divisions in teaching. Each of the seven specimen-based divisions contributed specimens to these 25+ courses that served 686 students.

Number of courses taught (23) and students served (705) by MSB faculty, adjuncts and graduate students. MSB faculty, adjunct faculty and graduate students taught the following classes, sections, and (number of students taught):

Biology: 203 (105); 204 (87); 247 (90); 248 (90); 379 (34); 386 (37); 402, 2 sections (11); 402/502, 4 sections (27); 461/561L (15); 463/563 (14); 478 (10); 487 (13); 488 (12); 489 (16); 502, 5 sections (35); 517 (12); 551, 2 sections (2); 599 (2); 699, 3 sections (9);

A&S: 198/602, (22);

Honors: 324 (12);

BioMed. 555 (16);

ARSC 198 (18).

New specimens catalogued (180,545). The number of specimens archived/catalogued into the MSB annually is an unambiguous measure of the activity of the collections. Because of the nature of fishes and the way in which they are collected, an active fish collection should always inventory a very large number of specimens compared to other vertebrate collections (e.g., birds). Our fish division is no exception, this year collecting 81.4% (147,083) of all new specimens brought into the MSB in 2006.

Personal requests for information (1,316). Requests for information from the nine divisions can vary from folks who stop in to ask questions, to phone calls from scientists, government agencies or the general public. Each of these personal requests takes time and uses resources from our curators and collection managers. These requests do not include the tens of thousands of such inquiries/year from hits and downloads of information from our web sites and data bases.

Grants and contracts in force (98). MSB faculty, museum associates, staff, and students participated in research and scholarly activities involving 98 different awards, contracts or grants from federal, state, private, and local agencies in 2006.

Federal, state, local, and private grant/contract/award dollars (app. \$13,832,844). MSB personnel had their names on 98 awards worth >\$13,832,844 million dollars in 2006. However, this number is deceiving because grants are usually multi-year awards so, obviously, this amount did not come directly to A&S or to Biology or to the MSB in 2006, and neither did much of the F&A generated by many of these funds. This amount also does not include a grant to UNM on which Terry Yates is the PI (as Vice President for Research) from the Defense Threat Reduction Agency for \$51,000,000 (*University Strategic Partnership, Active Task Orders*) as this grant brings no money or overhead to A&S, Biology, or the MSB. Also not included is the \$4,200,000 Sevilleta LTER grant on which several MSB Curators are co-PI's because the F&A for that grant is negotiated directly with A&S and neither Biology nor the MSB receive indirect costs. In addition, recording outside money received in any time frame is a complex process. Awards are made at many different times of the year and each has a different length of their duration (from months to years) depending on the funding agency and the task(s) required. F&S varies from agency to agency and is awarded in different methods and at different times during the length of the grant. For example, in a grant awarded for five years, the disbursement of funds (and F&A) varies from year to year. The amount of actual participation on any particular grant also may vary; thus, as noted above, at least three of the faculty in MSB are listed as one of many co-PIs on the Sevilleta LTER grant funded by NSF. However, their role in writing the grant was negligible (pers. comm., S. Collins), as well might be their actual participation in the research work done on the grant. Thus, this grant was not counted in the grant dollars recorded above and it is noted that none of the F&A returns to the MSB. In result, this \$13.8 million is a misleading figure, but it is nonetheless an index of the great activity and versatility of the MSB Curators. However, this year I did ask Curators to list both the amount of their research funds that were "in force" in only 2006 along with the amount of 2006 F&A generated by these funds; these amounts were \$3,892,602 and \$723,372++ (no F&A was reported on grants from the Division of Genomic Resources), respectively (see category 6 in each division's annual report, below).

DIVISION OF AMPHIBIANS AND REPTILES

1. DIVISION HIGHLIGHTS

During 2006, the conclusion of two major projects considerably increased the amount of information about New Mexico amphibians and reptiles available to both scientists and the general public. As part of HerpNet, a network of herpetological collections, data on specimens housed at the division became available through a standardized protocol on the internet (see <http://www.herpnet.org>). In addition, through collaboration with the New Mexico Department of Game and Fish, we compiled a comprehensive bibliography about New Mexico's amphibians and reptiles, and started work on establishing an observation database to which interested individuals can contribute and on improving distribution maps for many of the state's species.

The demand for information from both scientists and the general public is evident by the amount of webpage use and direct requests, as well as time spent handling those requests. In 2006, the revamped divisional website averaged over 400 hits per month. Furthermore, communication via telephone and email at the division resulted in the Curator and the Collection Manager handling 189 emails, of which 158 required detailed responses.

Working in collaboration with collection managers at other universities, we have started an electronic survey of herpetological collections in the USA. One of the goals of the survey is to consolidate the basic information about herpetological collections scattered around the country, including their contact information, geographical and taxonomic strengths, as well as availability to students and scientists. More locally, in our continuing commitment to the students at the University of New Mexico, we have inventoried and upgraded the storage of the teaching collection which currently houses over 2100 specimens.

2. TABLE OF COLLECTION USE

Collection Growth (specimens catalogued)	Loans (outgoing)	Loans (incoming)	Visitors	Information Requests Personally Responded to	Publications Citing MSB Specimens
691	9	3	121*	97	0

* does not include individuals who are part of tours hosted and/or given by personnel not associated with the division (e.g. general MSB tours)

3. COURSES USING THE COLLECTIONS

BIOL. 204, Animal Form and Function, Fall, 87 students

BIOL. 386, General Vertebrate Zoology: Spring and Fall semesters, ~80 students

BIOL. 488, Herpetology, Fall, 12 students

4. COURSES TAUGHT BY MSB PERSONNEL

A. Faculty/Collection Managers

Snell, H.L.

BIOL. 379, Conservation Biology, Spring, 34 students
BIOL. 386, General Vertebrate Zoology, Fall, 37 students
BIOL. 402, Field Herpetology, Spring, 10 students
BIOL. 488, Herpetology, Fall, 12 students
BIOL. 502, Field Herpetology, Spring, 2 students
BIOL. 551, Research Problems, Fall, 1 student
BIOL. 699, Dissertation, Spring, 3 students
BIOL. 699, Dissertation, Fall, 3 students

Poe, S.

BIOL. 502, ST/Philosophy of Biology, Fall, 6 students
BIOL. 386, General Vertebrate Zoology, Fall, 37 students
BIOL. 488, Herpetology, Fall, 12 students

B. Graduate Students

Phillips, R.B.

BIOL. 248, Human Anatomy/Physiology Lab II, Spring, 90 students (3 sections)
BIOL. 247, Human Anatomy & Physiology Lab I, Fall, 90 students (3 sections)

5. COLLECTION MANAGEMENT

During 2006, 15 accessions resulted in nearly 700 new specimens added to the main collection. The majority of these new specimens were from New Mexico and the most active research areas for the collectors associated with the division.

Following the establishment of improved hardware and software resources at the division last year, we concentrated our efforts on updating several administrative files and the teaching collection. The division is compliant with UNM's Institutional Animal Care and Use Committee as well as state scientific collecting rules. Field notes of 272 collectors that were stored in our library have been scanned and are available as Portable Document Format (PDF) files. The teaching collection, which contains over 2100 specimens, has been inventoried and its storage has been upgraded, including new jars and labels.

6. AWARDS, GRANTS, AND CONTRACTS

\$14,000. New Mexico Department of Game & Fish, Share with Wildlife Program. Banner #048678. Linking People with New Mexico's Amphibians and Reptiles. **H.L. Snell** PI and **J.T. Giermakowski** co-PI. 01/06-07/06. \$14,000 (F&A, \$1,273).

\$30,734. NSF Subcontract from University of Kansas. Development of a Distributed Information Network of North American Herpetological Databases. Banner #xxxx
H.L. Snell PI; 10/05-10/06. \$25,734 (F&A, \$7,182).

\$300,000. Charles Darwin Foundation. Program of Collaboration in Conservation Biology. **H.L. Snell** PI. 05/01-05/06.

7. PUBLICATIONS

A. Books, Book Chapters, Edited Volumes

Chapter in edited book: Chung-MacCoubrey, A. L. and **H. L. Bateman**. 2006. Chapter 4: Bosque restoration effects on bats and herpetofauna *In* Effects of fuel reduction and exotic plant removal on vertebrates, vegetation and water resources in the Middle Rio Grande, New Mexico Annual Report 2005. U.S.F.S. Rocky Mountain Research Station – Albuquerque, NM.

B. Journal Articles

Bateman, H.L. and M.A. O’Connell. 2006. Effects of prescribed burns on wintering cavity-nesting birds. Northwest Science 80: 283-291.

Suzan, G., **J.T. Giermakowski**, E. Marce, H. Suzan-Azpiri, B. Armien, and T.L. Yates. 2006. Modeling hantavirus reservoir species dominance in high seroprevalence areas on the Azuero Peninsula of Panama. American Journal of Tropical Medicine and Hygiene 74:1103-1110.

Hulebak, E. and **S. Poe**. 2006. *Anolis pandoensis* is a junior synonym of *Anolis kemptoni*. Caribbean Journal of Science 42:148-9.

Poe, S. 2006. Test of Von Baer’s law of the conservation of early development. Evolution 60:2239–2245.

Ciofi C, G.A. Wilson, L.B. Beheregeray, J.P. Gibbs, C. Marquez, W. Tapia, **H.L. Snell**, A. Caccone, J.R. Powell. 2006. Phylogeographic history and gene flow among giant Galapagos tortoises on southern Isabela island. Genetics 172:1727-1744

C. Web-Based

None.

D. Technical Reports

None.

E. Theses/Dissertations Completed

None.

F. Work In Progress (Only in press and already submitted)

Finch, D. M., A. Chung-MacCoubrey, **H.L. Bateman**, D. Hawksworth. 2006. Effects of non-native plant removal and fuels reduction on vertebrates along the Middle Rio Grande, New Mexico. Submitted to the Journal of Restoration Ecology.

Phillips, R.B., W.S. Winchell, and R. H. Schmidt. 2007. Dietary overlap of an alien and native carnivore on San Clemente Island, California. Journal of Mammalogy 88:173-180.

Poe, S. and C.Y. Miranda. 2007. A new species of phenacosaur *Anolis* from Peru. Herpetologica 63:219-223.

Poe, S. and R. Ibañez. 2007. A new species of *Anolis* lizard from the Cordillera de Talamanca of western Panama. Journal of Herpetology, in press.

Poe, S. and C.Y. Miranda. Accepted pending revision. A new green *Anolis* from the eastern Andes of Peru. Copeia.

Hulebak, E.P., **S. Poe**, R. Ibañez and E.E. Williams. In review. A striking new species of *Anolis* lizard from Panama. Submitted to Phyllomedusa December 8, 2006.

Poe, S., C.Y. Miranda and E. Lehr. In review. Notes on variation in *Anolis boettgeri* Boulenger 1911, assessment of the status of *A. albimaculatus* Henle and Ehrl 1991, and description of a new *Anolis* (Squamata: Polychrotidae) similar to *A. boettgeri*. Submitted to Journal of Herpetology December 9, 2006.

G. Publications/Reports Based on MSB Specimens/Data by Outside Researchers

None known or received.

8. ACTIVITIES IN LEARNED SOCIETIES

A. Invited/Plenary Talks and/or Seminars

Poe, S.

Yale University. Exaptation, Adaptation, Ecological Release, and Ecological Filtering in Solitary Island Lizards.

H.L. Snell.

Department of Integrative Biology Seminar Series, Brigham Young University, Provo, Utah, Evolutionary Ecology of Galapagos Lava Lizards: A Phenotypic Radiation in Response to Predation Rather Than Competition? or “Why Lizards Aren’t Finches!”, June.

B. Contributed Talks/Posters (*presenter)

Bateman H.L.*, D.M. Finch, A. Chung-MacCoubrey, and D. Hawksworth. 2006. Effects of non-native plant removal and fuels reduction on vertebrates along the Middle Rio Grande, New Mexico. Oral presentation. Tamarisk Research Conference: Current Status & Future, Fort Collins, CO.

Bateman H.L.*, A. Chung-MacCoubrey and **H.L. Snell**. Lizard abundance in restored bosque: Evaluating impacts of non-native plant removal. Poster presentation. University of New Mexico Dept. of Biology, 15th Annual Research Day. April.

Bateman H.L.*, A. Chung-MacCoubrey and **H.L. Snell**. Herpetofauna of the Middle Rio Grande bosque: Characterizing communities and species' habitat associations. Oral presentation. 39th Joint Annual AZ/NM Meeting of The Wildlife Society and AFS, Flagstaff, AZ. February.

Giermakowski J.T.*, NE Rios, CA Wolfe. An Online Survey of American Ichthyological and Herpetological Collections. Poster presentation. Joint Meeting of the American Society of Ichthyologists and Herpetologists (ASIH), Herpetologists' League (HL), and Society for the Study of Amphibians and Reptiles (SSAR), New Orleans LA, July.

Poe, S. Ecological release and ecological filtering in solitary island *Anolis* lizards. Joint Meeting of the American Society of Ichthyologists and Herpetologists (ASIH), Herpetologists' League(HL), and Society for the Study of Amphibians and Reptiles (SSAR), New Orleans LA, July.

Poe, S., C. Yañez-Miranda and E. Lehr. 2006. Four new species of *Anolis* from Peru. Joint Meeting of the American Society of Ichthyologists and Herpetologists (ASIH), Herpetologists' League(HL), and Society for the Study of Amphibians and Reptiles (SSAR), New Orleans LA, July.

C. Attendance at Professional Meetings

H.L. Bateman

39th Joint Annual AZ/NM Meeting of The Wildlife Society and AFS, Flagstaff, AZ. February.

J.T. Giermakowski

Annual meeting of the Society for the Preservation of Natural History Collections. Albuquerque, NM. May.

Joint Meeting of the American Society of Ichthyologists and Herpetologists (ASIH), Herpetologists' League (HL), and Society for the Study of Amphibians and Reptiles (SSAR), New Orleans LA, July.

S. Poe

Joint Meeting of the American Society of Ichthyologists and Herpetologists (ASIH), Herpetologists' League (HL), and Society for the Study of Amphibians and Reptiles (SSAR), New Orleans LA, July.

H.L. Snell

Annual meeting of the Society for the Preservation of Natural History Collections. Albuquerque, NM. May.

D. Service as Editor or on Editorial Board of a Journal

H. L. Snell

Editorial Board, Galapagos Research (formerly Noticias de Galapagos)

E. Service as Officer of Professional Society/Organization

None.

9. OTHER PROFESSIONAL ACTIVITIES

A. Presentation to General Audience in a Scholarly Capacity

H.L. Snell

Presentation to Tierra Grande Owners Association supporting establishment of a conservation easement on a 15,000 acre open space. Belen, New Mexico; July.

B. Presentations in a Scholarly Capacity at Hearings, Workshops, Legislative Committees, etc.

None.

C. Scholarly Service as a Member of a Local/State/Regional/National Committee, Panel, etc.

H.L. Snell.

New Mexico Department of Game & Fish Species Recovery Board.

J.T. Giermakowski.

New Mexico Department of Game & Fish Species Recovery Board.

Member of the Collections Committee of the American Society of Ichthyologists and Herpetologists.

Member of the local hosting committee for the Annual meeting of the Society for the Preservation of Natural History Collections

D. Journal Referee

S. Poe

Journal of Herpetology (1), Science (1), Zoologica Scripta (1)

H.L. Snell

Journal of Arid Environments (1).

E. Hosting Professional Colloquia and Groups

None.

10. SERVICE

A. Symposia, Workshops, Conferences etc. Sponsored, Organized, Held, etc.

J.T. Giermakowski

Local organizing committee, Annual Meeting of the Society for the Preservation of Natural History Collections

B. Public Service

H.L. Snell

Work with New Mexico Department of Game & Fish on Species Recovery issues.

Promotion of the Conservation Biology of the Galapagos Archipelago.

Member of the General Assembly of the Charles Darwin Foundation for the Galapagos Islands.

11. ADVANCED STUDY, HONORS, AWARDS, FELLOWSHIPS, ETC.

H.L. Bateman

Grove Dissertation Scholarship, Biology department, UNM

New Mexico Scholars Tuition Award, UNM

Dean's Dissertation Scholarship, Honorable Mention, UNM

Graduate Research and Development High Priority Grant, UNM

Graduate Student Scholarship by the Tamarisk Coalition awarded at Tamarisk Research Conference

Best Student Wildlife Presentation at the 39th AZ/NM Joint Annual Meeting of The Wildlife Society and American Fisheries Society, Flagstaff, AZ

Honorable Mention Graduate Student Poster Presentation at UNM Dept. of Biology 15th Annual Research Day

J.T. Giermakowski

Special Services Award from the Society for the Preservation of Natural History Collections

12. DONATIONS AND GIFTS RECEIVED

None.

13. CURRENT STAFF

A. Faculty/Staff

Snell, H.L. Professor and Curator
Degenhardt, W.D., Curator and Professor Emeritus
Poe, S., Assistant Professor and Curatorial Associate
Giermakowski, J.T. Collection Manager

B. Graduate students

Bateman, H.L., Ph.D./Snell
Giermakowski, J.T., Ph.D./Snell
Hollis, J.L., M.S./Poe
Phillips, R.B., Ph.D./Snell

C. Undergraduate Student Workers and Volunteers

Hyde, T.
Medrano, J.
Painter, A.
Reichert, S.

14. MUSEUM ASSOCIATES

A. Curatorial Associates

Painter, C.W., New Mexico Dept of Game & Fish
Stuart, J.N., New Mexico Dept of Game & Fish

B. Research Associates

Fitzgerald, L., Texas A&M University
Fritts, T.H., retired

DIVISION OF ARTHROPODS

1. DIVISION HIGHLIGHTS

The MSB and Department of Biology hired Dr. Kelly Miller as the new curator for the Division beginning January 2007, replacing Manuel Molles, who retired in June 2005. Kelly received his Ph.D. at Cornell University, and in 2006 was doing post-doctoral research at Brigham Young University. Kelly's interest is in the systematics of diving beetles, but he works with other insect groups as well. He will be joined by a new graduate student, Gino Nearns, who completed his master's degree from the University of Florida and will be working on the systematics of neotropical long-horned beetles. Both travel and collect throughout the world, and bring much-needed strength in systematics to complement the earlier focus on ecological studies of arthropods.

MSB hosted the 2006 combined meeting of the Society for the Preservation of Natural History Collections (SPNHC) and the Natural Science Collections Alliance (NSCA). The theme was "The Road to Productive Partnerships" with a focus on the various local, state and federal agencies we work with for collection permits, curation and loan of specimens, and reports of locality information for museum and agency databases.

During the CERIA Open House in October 2006 there were many visitors to the Division, which gave us the chance to highlight arthropod diversity in NM and answer questions about life history and conservation.

This year there were large increases in the number of information requests and visits to the Division. Information requests were up by 59% over last year, with a ratio of 1.5:1 researchers/university students : general public. The number of visits increased by 26%, a conservative measure, because some visits were not recorded.

The Division has loaned many specimens of solifuges to Jack Brookhart and Paula Cushing at the Denver Museum of Nature and Science, who have a grant to study the systematics of the group in North America.

Mike Medrano visited several museums to examine or borrow atopetholid millipede specimens for his systematics work: University of Arizona, University of California Riverside, Los Angeles County Museum of Natural History, University of California Berkeley, California Academy of Sciences, University of California Davis, Monte L. Bean Museum at Brigham Young University, Texas Memorial Museum, and University of Texas El Paso. He also collected parajulid millipedes at El Malpais National Monument, NM.

2. TABLE OF COLLECTION USE

Specimens Accessioned	Loans (outgoing)	Loans (incoming)	Visitors	Information Requests	Publications Citing MSB Specimens
5500	4	0	91	144	2

3. COURSES USING THE COLLECTION

A&S 198-602, Freshman Learning Community (FLC), 22 students

A&S 198-602, FLC student Amanda Vinson used specimens for her presentation “Drugs from Bugs” at the UNM Undergraduate Research Symposium, November

BIOL. & HONORS 324L, Natural History of the Southwest, 12 students

4. COURSES TAUGHT BY MSB PERSONNEL

A. Faculty/Collection Managers

Brantley, S.L.

A&S 198 (FLC 602), Freshman Learning Community Program, University College, “It IS a Bug’s Life: People in an Insect’s World,” 22 students

BIOL & HONORS 324L, Natural History of the Southwest, guest lecture on insect physiological ecology, 12 students.

Lightfoot, D.C.

BIOL 550, Ecological Research Design and Statistical Analysis, 1 student.

Along with Sandra Brantley, extensive mentoring in insect identification for graduate students Hilary Lease, Alaina Pershall, and Robin Warne for their projects involving movement of carbon and nitrogen through food webs.

5. COLLECTION MANAGEMENT

We completed data entry for all specimens in the existing dry collection into our database. We now have 19,000 specimens and their associated label information in the database. The database is accessible on-line through our web site.

We began the next task of accessioning various donated collections and specimens which we will then enter into our database. In addition to accessioning, we also have begun curating the many donated specimens that we have so that they can be accessioned and entered into the database.

The exhaust system and fume hood for the alcohol lab were improved, so that we could begin preparing alcohol specimens for storage in the fluid collection room. We estimate that 2-3 years will be needed to process the backlog of material. All the specimens need re-labeling, fresh alcohol and new vials to match the storage method used for fishes and reptiles and amphibians.

6. AWARDS, GRANTS, AND CONTRACTS

\$332,235. NSF/REVSYS. DEB # 0344288. A holistic approach to a holarctic group: subgeneric relationships within the genus *Andrena* Fabricius (Hymenoptera: Andrenidae) with a revision of the subgenus *Callandrena* Cockerell. **L.L. Larkin**, PI. 04/04-03/07. \$111,005 (F&A \$37,002).

\$41,000. FWS/Middle Rio Grande Bosque Initiative. Grant no. 201815G933. Development and publication of a field guide to bosque plants and animals. J.-L. E. Cartron, **D.C. Lightfoot**, **S.L. Brantley**, T. Lowrey and J. Mygatt, co-PIs. 09/05-08/06. \$41,000 (F&A \$0).

\$30,000. USFS/Rocky Mt. Research Station contract AG-82FT-P-05-0083. Effect of pinyon-juniper mortality on vegetation, ground-dwelling arthropods and rodents in the uplands of the Middle Rio Grande Valley, NM. P.L. Ford, N.S. Cobb and **S.L. Brantley**, co-PIs. 04/05-03/06. \$2500 (F&A \$0).

\$5,000. USGS/BRD contract order #06FTSA0059. Continuation of long-term monitoring of ground-active arthropods at Bandelier National Monument. **S.L. Brantley** and **D.C. Lightfoot**. 07/06-06/07 \$5,000 (F&A \$0).

Univversidad Autonoma de Mexico / University of New Mexico. **Ana Davidson**. Separate and combined effects of prairie-dogs and cattle on a desert grassland in northern Mexico. Ground-arthropod and grasshopper component managed by **D.C. Lightfoot** and **S.L. Brantley**. 08/06-08/07 \$5,000 (F&A \$0).

National Geographic Society. R.M. Shelley and **M.F. Medrano**. Travel grant to document the biodiversity of the arthropod class Diplopoda (millipedes) in southern coastal Alaska. (F&A \$0).

UNM Office of Career Services, Student Conference Award Program Travel Grant. **K.H. Gaines**. (F&A \$0).

Society for Conservation Biology Travel Grant. **K.H. Gaines**. (F&A \$0).

UNM Graduate & Professional Student Association Research Grant. **K.H. Gaines**. (F&A \$0).

UNM Biology Graduate Student Association Travel Grant. **K.H. Gaines**. (F&A \$0).

7. PUBLICATIONS

A. Books, Book Chapters, Edited Volumes

Gaines, K.H. 2006. Does the equilibrium theory of island biogeography apply to dragonfly breeding ecology in a desert sinkhole complex? Pp. 64-71 in Water and the landscape: the landscape ecology of freshwater ecosystems. Proceedings of the fourteenth IALE(UK) Annual Conference, Garstang.

B. Journal Articles

Larkin, L.L., J.L. Neff and B.B. Simpson. 2006. Phylogeny of the *Callandrena* subgenus of *Andrena* (Hymenoptera: Andrenidae) based on mitochondrial and nuclear DNA data: polyphyly and convergent evolution. Molecular Phylogenetics and Evolution 38:330-343.

Pohl, T.J. and **L.L. Larkin**. 2006. A new species of *Andrena* (Hymenoptera: Andrenidae) from Mexico. *Journal of the Kansas Entomological Society* 79:107-112.

Shelley, R.M., C.T. McAllister and **M.F. Medrano**. 2006. Distribution of the milliped genus *Narceus* Rafinesque, 1820 (Spirobolida: Spirobolidae): occurrences in New England and west of the Mississippi River; a summary of peripheral localities; and first records from Connecticut, Delaware, Maine and Minnesota. *Western North American Naturalist* 66:374-389.

Simpson, B.B., **L.L. Larkin**, A. Weeks and J. McDill. 2006. Phylogeny and biogeography of *Pomaria* (Caesalpinioideae: Leguminosae). *Systematic Botany* 31:792-804.

C. Web-Based

Larkin, L.L. , S. Droege, R. Andrus and T. Griswold. 2006. An interactive web-based key to the *Andrena* species of the eastern United States. Online at <http://pick5.pick.uga.edu/mp/20q?guide=Andrena> female and <http://pick5.pick.uga.edu/mp/20q?guide=Andrena> male

Shelley, R.M. and **M.F. Medrano**. 2006. *Nesoressa crawfordi*, n. gen., n. sp., a montane island milliped in New Mexico, USA: proposal of the new tribe Nesoressini and a preliminary cladogram of the lineage “Aniulina” (Julida, Parajulidae). *Zootaxa* 1285: 31-50.

D. Technical Reports

Brantley, S.L., D.C. Lightfoot 2006. Long-term studies of ground-dwelling arthropod biodiversity at Bandelier National Monument. Submitted to USGS, Jemez Mountains Field Station.

E. Theses/Dissertations Completed

None.

F. Work in Progress (Only in press and already submitted)

Lightfoot, D.C., S.L. Brantley and C.D. Allen. Geographic patterns of ground-dwelling arthropods across multiple ecoregion transitions in the North American Southwest. In press, *Western North American Naturalist*.

Pendleton, R.L., B.K. Pendleton, **K.R. Wetherill** and T. Griswold. In press. Reproductive biology of *Larrea tridentata*: a preliminary comparison between core shrubland and isolated grassland plants at the Sevilleta National Wildlife Refuge, New Mexico. In: Kitchen, S.L., R.L. Pendleton and T.A. Monaco, comps. 2007 *Shrublands under fire: disturbance and recovery in a changing world*: 2006 June 6-8, Cedar City UT. Proceedings RMRS – P-xx. Fort Collins, CO, USDA, Forest Service, Rocky Mountain Research Station.

G. Publications/Reports Based on MSB Specimens/Data by Outside Researchers

DiMenna, M.A., R. Bueno, R.R. Parmenter, D.E. Norris, J.M. Sheyka, J.L. Molina, E.M. LaBeau, E.S. Hatton and G.E. Glass. 2006. Comparison of mosquito trapping method efficacy for West Nile virus surveillance in New Mexico. *Journal of the American Mosquito Control Association* 22:246-253.

DiMenna, M.A., R. Bueno, R.R. Parmenter, D.E. Norris, J.M. Sheyka, J.L. Molina, E.M. LaBeau, E.S. Hatton and G.E. Glass. 2006. Emergence of West Nile virus in mosquito (Diptera: Culicidae) communities of the New Mexico Rio Grande valley. *Journal of Medical Entomology* 43:594-599.

Parmenter, R.R. 2005. Patterns of decomposition and nutrient cycling across a volcanic disturbance gradient: a case study using rodent carcasses. Pp. 233-242 in V.H. Dale, F.J. Swanson and C.M. Crisafulli, eds. *Ecological responses to the 1980 eruption of Mount St. Helens*. Springer, NY. 342 pp.

Parmenter, R.R., C.M. Crisafulli, N.C. Korbe, G.L. Parsons, M.J. Kreutzian and J.A. MacMahon. 2005. Posteruption arthropod succession on the Mount St. Helens volcano: the ground-dwelling beetle fauna (Coleoptera). Pp. 139-150 in V.H. Dale, F.J. Swanson and C.M. Crisafulli, eds. *Ecological responses to the 1980 eruption of Mount St. Helens*. Springer, NY. 342 pp.

Peters, D.P.C., J.R. Gosz, W.T. Pockman, E.E. Small, R.R. Parmenter, S.L. Collins and E. Muldavin. 2006. Integrating patch and boundary dynamics to understand and predict biotic transitions at multiple scales. *Landscape Ecology* 21:12-33.

8. ACTIVITIES IN LEARNED SOCIETIES

A. Invited/Plenary Talks and/or Seminars

Gaines, K.H. 2006. Dragonflies and damselflies of the Bitter Lake National Wildlife Refuge. First Symposium on the Aquatic Resources of the Bitter Lake National Wildlife Refuge, Roswell.

Lightfoot, D. C. 2006. The effects of global warming on rangeland insects. Invited oral presentation, Society for Range Management. March.

B. Contributed Talks/Posters (*presenter)

Baez, S.*, S. Collins and **D.C. Lightfoot**. 2006. Bottom-up regulation of plant community structure in an aridland ecosystem. Oral presentation, Sevilleta LTER Annual Research Symposium, March.

Brantley, S.* and D. Lightfoot. 2006. Ecoregion contributions to ground-spider diversity in the Rio Grande rift valley of New Mexico. Poster presentation, Sevilleta LTER Annual Research Symposium, March.

Friggens, M., **A. Davidson** *, P. Martin, S. Collins, R. Robichaud, D. Pritchard and T. Tadano. 2006. Relocation of Gunnison's prairie dogs to Sevilleta NWR: conservation, cooperation and ecological research. Poster presentation, Sevilleta LTER Annual Research Symposium, March.

Gaines, K.H.* 2006. Stable isotope analysis reveals food web complexity at different spatial scales in a patchy environment. Poster presentation, UNM Department of Biology Annual Research Day, April.

Gaines, K.H.* 2006. Can dragonfly exuviae be substituted for whole larvae and adults in stable isotope studies? Poster presentation, NSF Integrative Graduate Education Research and Training Program (IGERT) principal investigators annual meeting, Washington, D.C.

Gaines, K.H.* 2006. I can't believe it's not (living) butter! Can dragonfly exuviae be substituted for whole larvae and adults in stable isotope studies? Poster presentation, North American Benthological Society annual meeting, Anchorage, AK

Gaines, K.H.* 2006. Stable isotope analyses reveal food web complexity and conservation concerns. Oral presentation, Society for Conservation Biology. San Jose, CA.

Gaines, K.H.* 2006. Stable isotope analyses reveal food web complexity at different spatial scales. Oral presentation, 5th International Conference on Stable Isotopes in Ecological Studies, Belfast, Northern Ireland.

Gaines, K.H.* 2006. Does the equilibrium theory of island biogeography apply to odonate breeding ecology in a desert sinkhole complex? Oral presentation, International Association for Landscape Ecology (UK region), Oxford.

Hodson, A.* and L. Larkin. 2006. Molecular techniques can identify pollen hosts in bees (or, You never can tell with bees). Poster presentation, UNM Department of Biology Annual Research Day, April.

Kennedy, T.* 2006. River regulation and flow regime affect the patterns of diversity of macro-invertebrates in the middle Rio Grande. Poster presentation, UNM Department of Biology Annual Research Day, April.

Lightfoot, D.C.* 2006. Interactions between desert seed harvester ants (*Pogonomyrmex desertorum*) and granivorous kangaroo rats (*Dipodomys merriami*) in a Sevilleta desert creosotebush (*Larrea tridentata*) community. Poster presentation, Sevilleta LTER Annual Research Symposium, March.

Lightfoot, D. C.* 2006. The Chihuahuan Desert Small Mammal Exclosure Study. Oral presentation, LTER All Scientists Meeting, September.

Wetherill, K., R. Pendleton and B. Pendleton. 2006. Reproductive biology of *Larrea tridentata*: a comparison of core and isolated shrubs. Poster presentation, Sevilleta LTER Annual Research Symposium, March.

C. Attendance at Professional Meetings

See above.

D. Service as Editor or on Editorial Board of a Journal

Gaines, K.H.

2005-2006. North American editor for the International Biogeography Society newsletter.

E. Service as Officer of Professional Society/Organization

None.

9. OTHER PROFESSIONAL ACTIVITIES

A. Presentation to General Audience in a Scholarly Capacity

None.

B. Presentations in a Scholarly Capacity at Hearings, Workshops, Legislative Committees, etc.

None.

C. Scholarly Service as a Member of a Local/State/Regional/National Committee, Panel, etc.

Gaines, K.H.

2005-present. Member, Society for Conservation Biology Freshwater Working Group.

2001-present. Member, North American Benthological Society Conservation and Environmental Issues Committee.

Larkin, L.L.

2006-2007. UNM Department of Biology Research Day Committee.

Larkin, L.L.

2006-2007. Member, task force for peer-review of interactive keys, www.discoverlife.org.

D. Journal Referee

None.

E. Hosting Professional Colleagues and Groups

None.

10. SERVICE

A. Symposia, Workshops, Conferences etc. Sponsored, Organized, Held, etc.

MSB hosted the 21st annual meeting of the Society for the Preservation of Natural History Collections and the Natural Science Collections Alliance, 23-27 May 2006.

David Lightfoot and **Sandra Brantley** led field trip to the Sandia Mountains, to visit the plants and animals associated with the 4 life zones there.

B. Public Service

Brantley, S.L. and D.C. Lightfoot

Provided specimens and information on venomous arthropods to Dr. Arthur Mares for the UNM Student Health Center health fair, September.

McIntyre, J.L.

Presentations on insect biology to Valle Vista Elementary School students, March. 3 3rd grade classes and 1 4th grade class, total of 120 students.

11. ADVANCED STUDY, HONORS, AWARDS, FELLOWSHIPS

None

12. DONATIONS AND GIFTS RECEIVED

Richard Fagerlund, several hundred reprints/taxonomic keys to various arthropod taxa.
Richard Holland, 3000 specimens: moths, butterflies, other insect taxa collected in NM.
Eric Metzler, 2 books
Manuel Molles, 3 books
Gino Nearn, 6 books

13. CURRENT STAFF

A. Faculty/Staff

Manuel Molles, Professor Emeritus, Curator
Clifford Crawford, Professor Emeritus, Curator Emeritus
Sandra Brantley, Research Asst. Professor, Senior Collection Manager
David Lightfoot, Research Assoc. Professor, Senior Collection Manager

Graduate Students

Julieta Bettinelli, Ph.D. candidate
Karen Gaines, Ph.D. candidate
Ondrea Linderoth-Hummel, Ph.D. candidate
Julie McIntyre, Ph.D. candidate
Michael Medrano, Ph.D. candidate

Undergraduate Student Workers and Volunteers

Amanda Hodson, undergraduate

14. MUSEUM ASSOCIATES

A. Research Associates

Ana Davidson, postdoctoral fellow, UNM and UNAM
Richard Fagerlund, staff, UNM Environmental Services
Leah Larkin, Research Asst. Professor
Karen Wetherill, Research Scientist, Sevilleta LTER

DIVISION OF BIRDS

1. DIVISION HIGHLIGHTS

We received an unprecedented series of Lesser Prairie Chickens *Tympanuchus pallidicinctus* collected during a study of the species in Roosevelt County conducted by the George M. Sutton Avian Research Center, Bartlesville, OK. The condition of the specimens ranged from feather-perfect birds that died during handling, to predator-killed remains that were barely recognizable as avian samples. The specimens are mostly of adults, but include egg sets, some hatched egg fragments, and downy chicks. They are the first Lesser Prairie Chicken specimens from New Mexico in our collection since the 1960s. Most of these specimens are prepared, and many are catalogued thanks to the hard work of Robert W. Dickerman.

Our collection continues to be used by archaeological researchers who are trying to identify bird bone fragments. This use often is in the form of visits to the collection by the researcher, but this year we helped one person out via e-mail; he sent us photos of the bone, and we were able to identify it based on those photos and measurements.

Getting our database online has made our collections more accessible to the scientific community, and nearly all of our inquiries concerning the collection are coming via email, referring to our database. Data are only available for the 11 months August 2006 to to June 2007, during which we had 2494 hits on the Bird Division home page. We save tissues from all birds prepared, and those cryogenic samples are being increasingly used by researchers throughout the country.

2. TABLE OF COLLECTION USE

Collection Growth (new specimens)	Loans (outgoing)	Loans (incoming)	Visitors	Information Requests	Publications Citing MSB Specimens
315	5	4	21	20	4

3. COURSES USING THE COLLECTIONS

BIOL. 386, General Vertebrate Zoology: Fall semester, 36 students

4. COURSES TAUGHT BY MSB PERSONNEL

A. Faculty/Collection Managers

Johnson, A. B.

BIOL. 461L: Tropical Biology (3sch), Spring semester, 15 students (1 Guest Lecture)

Dickerman, R.W.

BIOL 461L: Tropical Biology (3sch), Spring Semester, 15 students (Accompanied field trip to Belize)

5. COLLECTION MANAGEMENT

We began proofing the data in our database against the data on the specimen labels. This effort was originally funded by the ORNIS project, and has been kept up by the Division's student worker funds. Progress has been rapid, and the passeriform skin collection is entirely proofed. Specimen records have not been updated in the database yet, but are in an excel spreadsheet that needs to be reincorporated into the main database.

We continue to use the Arctos Database as a data management tool for our collection. It is continuing to be developed, which means that occasionally some functions don't work when we want them to, but now that we are entirely committed to using it, it is working okay. The data entry process has been improved enough that it is usable, which was the biggest hindrance to our using it before.

Field work this year took us to all corners of New Mexico in search of Vesper Sparrows, and also into Colorado. We also took a trip to Bitter Lake National Wildlife Refuge in pursuit of water birds in a continued collaboration with Dr. Sara Brant and her work on avian schistosomes, particularly *Trichobalharzia*.

We received specimens from six accessions this year, with most of our specimens, as usual, coming from wildlife rehabilitators in the state. These are generally received from Kathleen Ramsay, of The Wildlife Center, Espanola, Penny Elliston of Wildlife Rescue, Inc, Albuquerque, and from Shirley Kendall, Corralles. Other major accessions were frozen birds received from other museums: Museum of Vertebrate Zoology, University of California Berkeley, and the Florida Museum of Natural History, University of Florida. These accessions of birds from other parts of the country complement our southwestern focus nicely. We also received the unprecedented Prairie Chicken collection from the G.M. Sutton Avian Research Center, Bartlesville, OK, as mentioned previously in Highlights (above).

6. AWARDS, GRANTS, AND CONTRACTS

None.

7. PUBLICATIONS

A. Books, Book Chapters, Edited Volumes

Burt, D. B., Coulter, P. F., & **Ligon, J. D.** 2006. Chapter 9. Evolution of parental care and cooperative breeding. Pp.295-325. in: Jamieson, B. G. M. ed. (2006). Reproductive Biology and Phylogeny of Birds. Vol 6B. Science Publishers, Enfield NH, USA.

B. Journal Articles

Dickerman, R.W. 2006. Birds of the southern Pacific lowlands of Guatemala (with a review of *Icterus gularis*). Special Publ. Museum of Southwestern Biology 1:1-41.

Dickerman, R. W. 2005 [=26 June 2006] *Sayornis saya yukonensis* is valid. Western Birds. 36:329-330.

Harden, J. E, **R. W. Dickerman**, and E. P. Elliston. 2006. Collection, use, and value of wildlife rehabilitation data. Journal of Wildlife Rehabilitation. 28:10-28.

Williams, S. O. III. 2006. New Mexico Region, fall migration 2005. North American Birds 60: 112-115.

Williams, S. O. III. 2006. New Mexico Region, winter season 2005-06. North American Birds 60: 265-268, 317.

Williams, S. O. III. 2006. New Mexico Region, spring migration 2006. North American Birds 60: 412-416, 471.

Williams, S. O. III. 2006. New Mexico Region, nesting season 2006. North American Birds 60(4): 633-636.

Williams, S. O. III. 2006. Recent AOU Check-list changes affecting the New Mexico bird list: the 47th supplement. NMOS Bulletin 34:67-69.

Lease, H. M., **B. O. Wolf** and J. F. Harrison. 2006. Intraspecific variation in tracheal volume in the American locust (*Schistocerca americana*) measured by a new inert gas method. Journal of Experimental Biology 209:3476-3481.

C. Web-Based

None.

D. Technical Reports

Johnson, T.H. and **S.O. Williams III.** 2006. The Peregrine Falcon in New Mexico, 2006. Rept. to NM Dept. Game and Fish, Santa Fe, NM, 22 p.

DeLong, J.P. and **S.O. Williams III.** 2006. Status report and biological review of the Gray Vireo in New Mexico. Rept. to NM Dept. Game and Fish, Santa Fe, NM. 31 p.

Williams, S.O. III and P. Mehlhop. 2006. Botteri's Sparrow in the middle Animas Valley: range extension and habitat use in relation to fire. Rept. to NM Dept. Game and Fish, Santa Fe, NM 3 p.

Williams, S.O. III. 2006. Field checklist of New Mexico birds. New Mexico Ornithological Society, Albuquerque, NM.

E. Theses/Dissertations Completed

William Neuwirth (started Fall 2002, graduating Fall 2006). Thesis title: The effects of pinon pine die-offs on the abundance and diversity of birds in northern New Mexico.

F. Work In Progress (partial list)

Dickerman, R.W. Notes of the Elf Owls of western Texas, adjacent Coahuila, and southeastern New Mexico, with description of a new subspecies. *Western Birds*. In press.

Dickerman, R.W. A zip trip (collecting redwings in Central America in 1968). *In* A fleeting moment of perfect flavor: Biological explorations in Middle America (Kevin Winker, ed.). Submitted to University Press of Florida.

Dickerman, R.W. 1950's Tabasco. *In* A fleeting moment of perfect flavor: Biological explorations in Middle America (Kevin Winker, ed.). Submitted to University Press of Florida.

Johnson, A.B. and K. Winker. Autumn stopover near the gulf of Honduras by Nearctic-Neotropic migrants. Submitted to *Wilson Journal of Ornithology*.

Williams, S.O. III, P. Mehlhop and D.A. Zimmerman, in September 2006 signed a publication agreement with UNM Press to produce a comprehensive book "Birds of New Mexico."

G. Publications/Reports Based on MSB Specimens/Data by Outside Researchers

Brasso, R.L., & S.D. Emslie. 2006. Two new late Pleistocene avifaunas from New Mexico. *Condor* 108:721-730.

Lott, C.A., & J P. Smith. 2006. A geographic-information-system approach to estimating the origin of migratory raptors in North America using stable hydrogen isotope ratios in feathers. *Auk* 123:822-835.

Millien, V., S.K. Lyons, L. Olson, F.A. Smith, A.B. Wilson, & Y. Yom-Tov. 2006. Ecotypic variation in the context of global climate change: revisiting the rules. *Ecology Letters* 9:853:869.

Van Riper, C., A.J. Banks, & S.S. Rosenstock. 2006. Breeding and wintering birds of Petrified Forest National Park, Arizona. *Museum of Northern Arizona Bulletin* No. 63, pp. 4-18.

8. ACTIVITIES IN LEARNED SOCIETIES

A. Invited/Plenary Talks and/or Seminars

Wolf, B.O. Are saguaros a “keystone” resource for consumers? an isotopic view of a plant-animal interaction, University of Western Ontario, Ontario, Canada. Department of Biology.

Wolf, B.O. Are saguaros a “keystone” resource for consumers? an isotopic view of a plant-animal interaction, Arizona State University, Tempe AZ. School of Life Sciences.

Wolf, B.O. Avian community ecology in a hot desert; abiotic drivers and biotic interactions, University of Alaska, Fairbanks. Fairbanks AK, Department of Biology and Wildlife.

B. Contributed Talks/Posters

Wolf, B.O., R. Warne, and C. Mathiasen. The functional importance of columnar cacti as resources for a desert bird community; an assessment using stable isotopes. New Mexico Ornithological Society, 44th Annual Meeting, Albuquerque, NM, May 20.

B.O. Wolf, A.E. Mckechnie, R. Warne and C.C. Mathiasen. The importance of columnar cacti to avian consumers in the Sonoran Desert. IV. North American Ornithological Conference, Veracruz, México, October.

R. Warne, A. Pershall and **B.O. Wolf**. Quantifying the resource dynamics of a Sevilleta LTER lizard community: Coupling abiotic drivers and ecosystem productivity. LTER All Scientist Meeting, September 20-24, Estes, CO.

Gilman, C. and **B.O. Wolf**. Lizards, eggs, and ultrasound: testing the efficacy of quantifying reproductive effort in squamate reptiles using portable ultrasonography. Joint Meeting of Ichthyologists and Herpetologists, New Orleans, LA July 12-17.

The importance of cacti to consumers in a desert food web. **B.O. Wolf**, A.E. Mckechnie, R. Warne and C.C. Mathiasen. The 5th international conference on the application of stable isotope techniques to ecological studies, 13-18 August, Belfast, Northern Ireland.

Lizard life history strategies and population dynamics under a regime of pulsed resources.*Warne, R., D. Lightfoot and **B.O. Wolf**. Society for Integrative and Comparative Biology Annual Meeting. 4-8 January, Orlando, FL.

Lizards, eggs, and ultrasound: testing the efficacy of quantifying reproductive effort in squamate reptiles using portable ultrasonography.*Gilman, C. and **B.O. Wolf**. Society for Integrative and Comparative Biology Annual Meeting. 4-8 January, Orlando, FL.

Portable ultrasonography– developing a non-invasive technique to quantify reproductive effort in small mammals. Mathiasen, C.C., C.A. Gilman and **B.O. Wolf**. Society for Integrative and Comparative Biology Annual Meeting. 4-8 January, Orlando, FL.

Dickerman, R.W. & A.B. Johnson. Elf Owls of the Southwest. New Mexico Ornithological Society, 44th Annual Meeting, Albuquerque, NM, May 20.

Johnson, A.B.*, and R.W. Dickerman. Distribution of the Mountain Vesper Sparrow *Pooecetes gramineus altus* Phillips 1964. Poster Presentation. Southwestern Association of Naturalists Meeting Ciudad Colima, Col, Mexico, April.

Johnson, A.B.*, and Kevin Winker. Autumn stopover near the Gulf of Honduras by Nearctic – Neotropic migrants. IV North American Ornithological Conference, Veracruz, México, October.

C. Attendance at Professional Meetings

Dickerman, R.W.

New Mexico Ornithological Society Annual Meeting Albuquerque, NM May;
Southwestern Association of Naturalists Meeting Ciudad Colima, Col, Mexico April;
North American Ornithological Congress Ciudad Veracruz, Ver, Mexico October.

Johnson, A.B.

Society for the Preservation of Natural History Collections Annual Meeting Albuquerque, NM, May; Southwestern Association of Naturalists Meeting Ciudad Colima, Col, Mexico, April;
North American Ornithological Congress Ciudad Veracruz, Ver, Mexico, October.

Wolf, B.O.

New Mexico Ornithological Society Annual Meeting Albuquerque, NM, May; North American Ornithological Congress Ciudad Veracruz, Ver, Mexico, October; Society for Integrative and Comparative Biology Annual Meeting. 4-8 January, Orlando, FL; The 5th international conference on the application of stable isotope techniques to ecological studies, 13-18 August, Belfast, Northern Ireland; LTER All Scientist Meeting, September 20-24, Estes, CO; Joint Meeting id Ichthyologists and Herpetologists, 17-17 July, New Orleans, LA.

D. Service as Editor or on Editorial Board of a Journal

Williams, S.O. III

New Mexico Editor **North American Birds** (USA).

Wolf, B.O.

Editorial Board, **Oecologia** (USA).

E. Service as Officer of Professional Society/Organization

Wolf, B.O.

Chair, Publications Committee, The Cooper Ornithological Society; Elected member, Board of Directors, The Cooper Ornithological Society; SORA (Searchable Ornithological Research Archive) Coordinator (elibrary.unm.edu/SORA).

9. OTHER PROFESSIONAL ACTIVITIES

A. Colloquium Presentations

None.

B. Presentation to General Audience in a Scholarly Capacity

B.O. Wolf

New Mexico Audubon. Are saguaros a “keystone” resource for consumers? an isotopic view of a plant- animal interaction. Albuquerque, NM.

Western Bird Banding Association annual meeting, Keynote address. Are saguaros a “keystone” resource for consumers? an isotopic view of a plant- animal interaction. Albuquerque, NM.

Eisenhower middle school 7th and 8th grade classes. (6 sections) Giant cacti, birds and isotopes; you are what you eat. Albuquerque, NM.

C. Presentations in a Scholarly Capacity at Hearings, Workshops, Legislative Committees, etc.

None.

D. Scholarly Service as a Member of a Local/State/Regional/National Committee, Panel, etc.

Wolf, B.O.

NSF population biology panelist (EPE) fall panel.

Grant proposal reviews: Israel-US Bi-National Science Foundation (1)

National Science Foundation, IOB-Ecological Biology Cluster Systems Cluster (22) National Institute of Water Resources (1)

Murdock Foundation (1).

E. Journal Referee

Johnson, A.B.

The Auk (2)

Wolf, B.O.

The Auk (1), The Journal of Experimental Biology (1), Journal of Zoology (1), Physiological and Biochemical Zoology (1), Oecologia (1).

10. SERVICE

A. Symposia, Workshops, Conferences etc. Sponsored, Organized, Held, etc.

Johnson, A.B.

Local Committee Member for Society for the Preservation of Natural History Collections
Annual Meeting

Wolf, B.O.

Chair of New Mexico Ornithological Society meeting paper session.
Symposium co-organizer, IV North American Ornithological Conference, Veracruz, México,
October, 2006.

B. Public Service

Williams, S.O. III

Secretary of the New Mexico Bird Records Committee
New Mexico Coordinator of the North American Breeding Bird Survey (BBS)

Wolf, B.O.

Institutional Animal Care and Use Committee
Presentations at Eisenhower Middle School
NSF population biology and evolutionary ecology panelist (fall panel)
Outside committee member for Kevin McCluney, Ph.D. candidate, ASU, Tempe Editorial
Board, **Oecologia** (USA)
Handling Editor for Animal isotopic, Avian Biology and Physiological Ecology, 2005-2008
Chair, Publications Committee, The Cooper Ornithological Society, 1999-present.

11. ADVANCED STUDY, HONORS, AWARDS, FELLOWSHIPS, ETC.

None

12. DONATIONS AND GIFTS RECEIVED

Prairie Chickens from George Miksch Sutton Avian Research Center

13. CURRENT STAFF

A. Faculty/Staff

Robert W. Dickerman, Acting Curator
J. David Ligon, Curator Emeritus
Andrew B. Johnson, Collection Manager
Blair O. Wolf, Associate Curator

B. Graduate students

Christa Weise, Ph.D. Graduate Assistant
Alison Boyer, Ph.D. Graduate Assistant

C. Undergraduate Student Workers and Volunteers

Caitlin Goss, Work Study

Sean Rix, Work Study

14. MUSEUM ASSOCIATES

A. Curatorial Associates

John P. Hubbard

B. Research Associates

Sartor O. Williams, III

DIVISION OF FISHES

1. DIVISION HIGHLIGHTS

The MSB Division of Fishes currently has 54,593 catalogued lots of fishes or 2,922,011 specimens. In 2006, **\$480,078.00** in grants and contracts was made available for ichthyological studies by MSB Division of Fishes staff.

Outreach Summary: Staff in the Division of Fishes gave one tour to Zuni Pueblo middle school students, which involved hands on examination of preserved fishes (form and function) and discussion of water conservation issues. Alejandra Alvarado Zink, M.S. from the Museo de las Ciencias Univesum, UNAM Area de Educacion y Comunicacion Ambiental, Mexico D.F. interviewed Platania and Snyder on collecting fishes for scientific purposes and museum curation of fluid-preserved specimens for her science radio program in Mexico City.

2. TABLE OF COLLECTION USE

Collection Growth (specimens catalogued)	Loans (outgoing)	Loans (incoming)	Visitors	Information Requests	Publications Citing MSB Specimens
147,083	*9	7	**28	***48	****1

*Specimen loans, gifts, exchanges, and tissue (consumptive) transfers: transactions

** only visitors doing research, accessing specimens, or info exchange (not tour groups)

***email, letters, telephone, (not tour groups)

****publications in peer review journals

3. COURSES USING THE COLLECTIONS

BIOL. 204L, Plant and Animal Function and Form: Spring 2006, 32 students

BIOL. 240L, Plant and Animal Function and Form: Fall 2006, 87 students

BIOL. 324 Honors: Natural History of the Southwestern USA: Fall 2006, 15 students

BIOL. 386L, General Vertebrate Zoology: Fall 2006, 37 students

BIOL. 487, Ichthyology: Spring 2006, 13 students

BIOL. 495, Limnology: Spring 2006, 25 students

BIOL. 502, Ecology and Evolution of Fishes: Spring 2006, 3 students

4. COURSES TAUGHT BY MSB PERSONNEL

A. Faculty/Collection Managers

Turner, T. F.

BIOL. 487, Ichthyology: Spring 2006, 13 students

BIOL. 502, Molecular Ecology and Evolution: Fall 2006, 15 students

BIOL. 502, Ecology and Evolution of Fishes: Spring 2006, 4 students

B. Graduate Students

None

5. COLLECTION MANAGEMENT

Twenty accessions of 2,921 lots and 106,896 specimens were received during 2006. Contributors included U.S. Fish and Wildlife Service-Fishery Research Office, New Mexico Department of Game and Fish, the Wyoming Department of Game and Fish, New Mexico Environment Department, and San Juan River Research Project.

6. AWARDS, GRANTS, AND CONTRACTS

\$500,000. National Science Foundation CAREER, Museum-based Approaches to Ecology and Evolution of Aquatic Systems: An Integrated Research and Educational Program. DEB-0133233. **T.F. Turner, PI** 5/02-4/08. \$100,000 (F&A, \$50,000)

\$6,000. National Science Foundation REU supplement to CAREER: Museum-based approaches to ecology and evolution of aquatic systems: an integrated research and educational program. UNM 48443. **T.F. Turner, PI** 5/06-4/10. \$6,000 (F&A, \$0)

\$450,000. US Bureau of Reclamation. Conservation genetics of the Rio Grande silvery minnow (*Hybognathus amarus*): Baseline population genetics of wild stocks and monitoring genetic effects of captive-propagated stocks. Agreement 02-FG-40-8120. **T.F. Turner, PI** 7/02–9/06. \$114,000 (F&A, \$17,100)

\$65,137. US Fish and Wildlife Service. Collaborative research and monitoring: Genetic component in the evaluation of the Rio Grande silvery minnow (*Hybognathus amarus*) health in relation to changes in water quality, pathogens and other environmental stressors. **M.J. Osborne, PI and J. Lusk, A. Donahue, P. Hines, and S. Stringer Co-PIs** \$65,137

\$11,958. National Science Foundation. Local adaptation and gene flow in a fragmented host system: *Crepidostomum farionis* (Digenea) and *Oncorhynchus clarki virginalis* (Salmonidae) in New Mexico. UNM 48704 **T.F. Turner, PI and W.D. Wilson, Co-PI** 05/06-4/08. \$11,958 (F&A, ?)

\$125,000. US Bureau of Reclamation. Grant agreement No.05-FG-40-2411 for curatorial services between Bureau of Reclamation Upper Colorado Regional Office and the Museum of Southwestern Biology at the University of New Mexico. UNM 048617. **A.M. Snyder, PI and T.F. Turner Co-PI** 8/05-9/10. \$25,000 (F&A, \$3,261)

\$66,240. US Bureau of Reclamation. San Juan River larval Colorado pikeminnow (*Ptychocheilus lucius*) survey. UNM 048591. **M.A. Farrington, PI and T.F. Turner, Co-PI** 9/01-3/07. \$66,240 (F&A, \$8,640) Renegotiated every year.

\$60,030. US Bureau of Reclamation. San Juan River larval razorback sucker (*Xyrauchen*

texanus) survey. UNM 048592. **W.H. Brandenburg, PI and T.F. Turner, Co-PI.** 9/01-3/07. \$60,030 (F&A, \$7,830) Renegotiated every year.

\$39,097. US Bureau of Reclamation. Update and maintenance of San Juan River Recovery and Implementation Plan, GIS database and development of a web-based interactive interface. UNM 048590. **W.H. Brandenburg, PI and T.F. Turner, Co-PI.** 9/01-3/07. \$39,097 (F&A, \$5,100) Renegotiated every year.

\$8,386. US Bureau of Reclamation. Upper Colorado River Basin ichthyofaunal research. UNM 048434. **M.A. Farrington, PI and T.F. Turner, Co-PI.** 9/01-3/07. \$8,386 (F&A, \$1,094) Renegotiated every year.

\$5,600. New Mexico Department of Game & Fish, New Mexico Share-with-Wildlife Program. Baseline genetic data for the threatened Pecos bluntnose shiner (*Notropis simus pecosensis*). UNM 048674 **T.F. Turner, PI and M.J. Osborne, Co-PI.** 1/06-6/07. \$5,600 (F&A, \$560)

\$100,000. US Fish and Wildlife Service. Assessment of diversity at the major histocompatibility complex in the Rio Grande silvery minnow (*Hybognathus amarus*). UNM 48816 **M.J. Osborne, PI and T.F. Turner, Co-PI.** 9/06-9/2008. \$50,000 (F&A, \$5,000)

7. PUBLICATIONS

A. Books, Book Chapters, Edited Volumes

None.

B. Journal Articles

Krabbenhoft, T.J., F.C. Rohde, and J.M. Quattro. 2006. Threatened fishes of the world: *Etheostoma perlongum* (Hubbs and Raney, 1946) (Percidae). *Environmental Biology of Fishes* 76:411-412

Turner, T.F., M.J. Osborne, G.R. Moyer, M.A. Benavides, and D. Alo. 2006. Life history and environmental variation interact to determine effective population to census size ratio. *Proceedings of the Royal Society of London-Series B*, 273:3065-3073.

Turner, T.F. and H.W. Robison. 2006. Genetic diversity of the Caddo madtom, *Noturus taylori*, with comments on factors that promote genetic divergence in fishes endemic to the Ouachita Highlands. *Southwestern Naturalist* 51:338-345.

Pease, A.A., J.J. Davis, M.S. Edwards, and T.F. Turner. 2006. Habitat and resource use by larval and juvenile fishes in an arid-land river (Rio Grande, New Mexico). *Freshwater Biology* 51:475-486.

Osborne, M.J., M.A. Benavides, D. Alo, and T.F. Turner. 2006. Genetic effects of hatchery propagation and rearing in the endangered Rio Grande silvery minnow (*Hybognathus amarus*). Reviews in Fisheries Science 14:127-138.

C. Web-Based

None.

D. Technical Reports

Turner, T.F. and M.J. Osborne. 2006. Genetic monitoring in the Rio Grande silvery (*Hybognathus amarus*) minnow: genetic status in 2006. Annual Report to the US Bureau of Reclamation, September, 82 pp

Turner, T.F. 2006. Genetic status of a newly discovered population of Rio Grande sucker (*Catostomus plebeius*) in the upper Rio Grande, Crestone Creek, Colorado. Prepared for John Alves, Colorado Division of Wildlife, Monte Vista CO, 10 pp.

Osborne, M.J. and T.F. Turner. 2006. Baseline genetic survey of the threatened Pecos River bluntnose shiner (*Notropis simus pecosensis*). Report to New Mexico Department of Game and Fish, Santa Fe, October.

Brandenburg, W.H. and M.A. Farrington. 2006. Colorado pikeminnow (*Ptychocheilus lucius*) and razorback sucker (*Xyrauchen texanus*) larval fish survey in the San Juan River 2006. Report to the US Bureau of Reclamation, San Juan River Recovery Implementation Program. 100 pp.

Brandenburg, W.H. May 2006. Identification of Catostomidae fishes collected from Crestone Creek, Saguache CO. Prepared for John Alves, Colorado Division of Wildlife, Monte Vista CO. 1 pp.

Brandenburg, W.H. 2006. Identification of *Gila* species (Cyprinidae) collected from San Francisco River, Gila River, White River, Beaver Creek, and San Juan River, New Mexico. Prepared for David L. Propst, New Mexico Department of Game and Fish, Santa Fe.

Brandenburg, W.H. December 2006. Identification of fishes as stomach contents in *Nerodia* species (Colubridae) from Mexico and New Mexico. Prepared for Bruce Christman, contractor New Mexico Department of Game and Fish, Santa Fe.

Brooks, J.E., C. Tolle, N. Smith, W.H. Brandenburg, A. Varela Romero, M. Kirkemide. 2006. Inventory of the fish community and qualitative habitat assessment of the upper Rio Tutuaca: Conditions within boundaries of the Tutuaca Mountain Center, Rancho el Nogal. Report to the World Wildlife Fund. 40 pp.

Dudley, R.K., S.P. Platania, and S.J. Gottlieb. 2006. Rio Grande silvery minnow (*Hybognathus amarus*) population monitoring program results from 2005. Report to the Middle Rio Grande Endangered Species Act Collaborative Program and the U.S. Bureau of Reclamation, Albuquerque, New Mexico. 193 pp.

Dudley, R.K., S.P. Platania, and S.J. Gottlieb. 2006. Rio Grande silvery minnow (*Hybognathus amarus*) population monitoring monthly trip reports and analyses. Twelve reports to the Middle

Rio Grande Endangered Species Act Collaborative Program and the US Bureau of Reclamation, Albuquerque, New Mexico. 28 pp.

Platania, S. P., and R. K. Dudley. 2006. Spawning periodicity of Rio Grande silvery minnow during 2006. Report to the Middle Rio Grande Endangered Species Act Collaborative Program and the US Bureau of Reclamation, Albuquerque, New Mexico. 30 pp.

E. Theses/Dissertations Completed

Edwards, Melanie S. Fall 2006. Ph.D. Dissertation: Current and historical food webs of the middle Rio Grande, New Mexico.

Peters, Maureen B. Spring 2006. M.S. Thesis: Genetic variation in the MHC class II region of the threatened Gila trout (*Oncorhynchus gilae*).

F. Work In Progress (Only in press and already submitted)

Ross, S. T. and W. J. Matthews. Evolution and ecology of North American freshwater fish assemblages. *In: North American Freshwater Fishes: Ecology, Evolution, and Behavior.* R.L. Mayden and B.M. Burr (eds.). Elsevier/Academic Press.

Ross, S.T. Native fishes. *In: Mississippi Encyclopedia.* C.R. Wilson (ed). University Press of Mississippi.

Peterson, M.S., M.R. Weber, M.L. Partyka, and **S.T. Ross.** Preprint. Integrating *in situ* quantitative geographic information tools and size-specific laboratory-based growth zones in a dynamic river-mouth estuary. Aquatic Conservation: Marine and Freshwater Ecosystems.

G. Publications/Reports Based on MSB Specimens/Data by Outside Researchers

Carveth, Corissa J., A.M. Widmer, and S.A. Bonar. 2006. Comparison of upper thermal tolerances of native and nonnative fish species in Arizona. Transaction of the American Fisheries Society 135:1433-1440

Paroz, Yvette M. and D.L. Propst. 2006. Long-term monitoring of fish assemblages in the Gila River Drainage, New Mexico, 1988-2005. Submitted to U.S. Fish and Wildlife Service and U.S. Bureau of Reclamation, 150 pp.

8. ACTIVITIES IN LEARNED SOCIETIES

A. Invited/Plenary Talks and/or Seminars (*presenter)

Turner, T.F.* and M.J. Osborne. 2006. Conservation genetics of the Rio Grande silvery minnow (*Hybognathus amarus*): genetic monitoring from 1999-2006. Invited Symposium: Middle Rio Grande Endangered Species Act Collaborative Program. University of New Mexico, Continuing Education. 11 April.

Dudley, R.K.*, S.P. Platania, and S.J. Gottlieb. 2006. Rio Grande silvery minnow population monitoring (1993-2006). Invited Symposium: Middle Rio Grande Endangered Species Act Collaboration Program, University of New Mexico, Albuquerque, NM. 10 April.

B. Contributed Talks/Posters (*presenter)

Moyer, G.R., **T.F. Turner***, **M.J. Osborne**. 2006. How did the plains minnow replace the Rio Grande silvery minnow (*Hybognathus amarus*) in the Pecos River? Desert Fishes Council, Death Valley, CA 16-19 November.

Osborne, M.J. and **T.F. Turner***. 2006. Baseline genetic survey of the Pecos bluntnose shiner (*Notropis simus pecosensis*). Desert Fishes Council, Death Valley, CA. 16-19 November.

Osborne, M.J.* and **T.F. Turner**. 2006. Long-term genetic studies in the Rio Grande silvery minnow (*Hybognathus amarus*): an examination of effects of population decline and supportive breeding. Desert Fishes Council, Death Valley, CA. 16-19 November.

Peters, M.B. 2006. Genetic variation in the endangered Gila trout (*Oncorhynchus gilae*). University of New Mexico, Department of Biology Research Day. 13 April.

Peters, M.B. 2006. Genetic variation in the endangered Gila trout (*Oncorhynchus gilae*). Annual Meeting of American Society of Ichthyologists and Herpetologists, New Orleans, LA. 12-17 July.

Turner, T.F.* and **M.J. Osborne**. 2006. "Temporary" population structure and its importance for evolution of freshwater fishes: examples from the American Southwest. Annual Meeting of American Society of Ichthyologists and Herpetologists, New Orleans, LA. 12-17 July.

Wilson, W.D.* and **T.F. Turner**. 2006. Comparison of MHC class IIb sequence between species of Pacific trout and salmon (Salmonidae: *Oncorhynchus*). University of New Mexico, Department of Biology Research Day. 13 April.

Brandenburg, W. H.*, **J.E. Brooks**, S.R. Davenport, J.W. Remshardt, J.E. Davis, D.L. Propst, S.M. Carman, **S.P. Platania**, R.K. Dudley, and L.E. Renfro. 2006. New Mexico Area Report: Upper/Middle Rio Grande and Pecos River, including Arkansas River, Tularosa and Guzman Basins. Desert Fishes Council, Death Valley, CA. 16-19 November.

Brooks, J.E.*, C. Tolle, N. Smith, **W.H. Brandenburg**, A. Varela Romero, M. Kirkemide. 2006. Cortes Montano Citlali. Fishes of the upper Rio Tutuaca, Chihuahua, Mexico. Desert Fishes Council, Death Valley, CA. 16-19 November.

C. Attendance at Professional Meetings

W.H. Brandenburg

Desert Fishes Council, 38th annual meeting, Death Valley, CA 16-19 November

A.S. Burdett

Desert Fishes Council, 38th annual meeting, Death Valley, CA 16-19 November
Middle Rio Grande Endangered Species Collaborative Program. First Annual Symposium,
Albuquerque NM, 11-12 April
University of New Mexico Water Forum First Annual Meeting, Albuquerque NM, 31 October.

M.J. Osborne

Desert Fishes Council, 38th annual meeting, Death Valley, CA 16-19 November.
American Society of Ichthyologists and Herpetologists, 86th Annual meeting, New Orleans, LA.
12-17 July.

S.T. Ross

American Society of Ichthyologists and Herpetologists, 86th Annual meeting, New Orleans, LA.
12-17 July.

A.M. Snyder

Desert Fishes Council, 38th annual meeting, Death Valley, CA 16-19 November
American Society of Ichthyologists and Herpetologists, 86th Annual meeting New Orleans, LA.
12-17 July

T.F. Turner

Desert Fishes Council, 38th annual meeting, Death Valley, CA 16-19 November
American Society of Ichthyologists and Herpetologists, 86th Annual meeting New Orleans, LA.
12-17 July

D. Service as Editor or on Editorial Board of a Journal**T.F. Turner**

Occasional Papers of the Museum of Southwestern Biology

E. Service as Officer of Professional Society/Organization**S.T. Ross**

Board of Governors, American Society of Ichthyologists and Herpetologists, Class of 2002-07.
Chair Elect, Endowment Committee, American Society of Ichthyologists and Herpetologists,
1999-present.

T.F. Turner

Board of Governors, American Society of Ichthyologists and Herpetologists, Class of 2007.

9. OTHER PROFESSIONAL ACTIVITIES**A. Presentation to General Audience in a Scholarly Capacity**

Brandenburg, W.H. 2006. Results of the 2005 larval Colorado pikeminnow (*Ptychocheilus lucius*) and razorback sucker (*Xyrauchen texanus*) surveys on the San Juan River. San Juan River Basin Recovery Implementation program, Biology Committee, Farmington NM 13-15 February.

Dudley, R.K. and S.P. Platania. 2006. Monitoring long-term population trends of Rio Grande silvery minnow (*Hybognathus amarus*) 1993-2005 with highlights from the Bosque del Apache National Wildlife Refuge. Bosque del Apache National Wildlife Refuge Annual Research Day and Festival of the Cranes.

Turner, T.F. 2006. Genetic and demographic causes of decline in a desert fish. University of Illinois, Urbana-Champaign, Natural Resources and Environmental Sciences, March.

Turner, T.F. 2006. The role of the MSB Division of Fishes for conservation science in New Mexico. Museum of Southwestern Biology Open House, 8 October.

Turner, T.F. 2006. The ichthyofauna of New Mexico. Guest lecturer, University of New Mexico Biology Honors Program, October.

B. Presentations in a Scholarly Capacity at Hearings, Workshops, Legislative Committees, etc.

None.

C. Scholarly Service as a Member of a Local/State/Regional/National Committee, Panel, etc.

W. H. Brandenburg

Member, Advisory Committee for Restoration of roundtail (*Gila robusta*) and Gila chub (*Gila nigra*).

Member, San Juan River Biology Committee.

Coordinator, New Mexico Area Native Fishes Report for Desert Fishes Council.

R.K. Dudley

Technical Advisor, Recovery Team for Rio Grande silvery minnow (*Hybognathus amarus*), U.S. Fish and Wildlife Service.

Technical Advisor, Middle Rio Grande Endangered Species Act Collaborative Program.

M.A. Farrington

Member, Advisory Committee for Restoration of roundtail (*Gila robusta*) and Gila chub (*Gila nigra*).

Member, San Juan River Biology Committee.

M.J. Osborne

Member, Working Group on the Rio Grande silvery minnow, *Hybognathus amarus* captive propagation and genetics workgroup, U.S. Fish and Wildlife Service.

S.P. Platania

Member, Committee on Endangered and Threatened Fish Species, American Fisheries Society.
Member, Recovery Team for Rio Grande silvery minnow (*Hybognathus amarus*), U.S. Fish and Wildlife Service.

S.T. Ross

Member, Peer Review Panel, San Juan River Basin Recovery Implementation Program.
Reviewer (N=1), proposal for California Bay Delta Authority CALFED Ecosystem Monitoring, 4 October.
Promotion and tenure review, Department of Zoology, University of Oklahoma, 11 September.

T.F. Turner

Member, Gila trout (*Oncorhynchus gilae*) Recovery Team, US Fish and Wildlife Service.
Member, Rio Grande silvery minnow, (*Hybognathus amarus*) Brood Stock Management Plan Development Team, U.S. Fish and Wildlife Service.
Advisor, Genetics issues for the Rio Grande Fishes Recovery Team
Ad-hoc reviewer, research proposals (N=3) in systematics, population biology, and ecology for National Science Foundation.

W.D. Wilson

Member, Sigma Xi

D. Journal Referee**T.J. Krabbenhoft**

Copeia (1)

M.J. Osborne

Molecular Biology and Evolution (1), Conservation Genetics (1)

S.T. Ross

Copeia (1), Ecology of Freshwater Fish (1), Oecologia (1), Southwestern Naturalist (1)

T.F. Turner

Canadian Journal of Fisheries and Aquatic Sciences (1), Ecology of Freshwater Fishes (1), and Journal of Fish Biology (1), Bioscience (1) Freshwater Biology (1) Geological Society of America: Special Publications (1)

E. Hosting Professional Colloquia and Groups

None.

10. SERVICE

A. Symposia, Workshops, Conferences etc. Sponsored, Organized, Held, etc.

None.

B. Public Service

A.S. Burdett

Student mentor, NSF Research for Undergraduate Education one student May to August; aquatic entomologist on undergraduate student field trip to Oklahoma, UNM Biol. 487 Ichthyology.

R.K. Dudley

Technical and scientific advisory role for the conservation and management of threatened and endangered native fishes for the New Mexico Department of Game and Fish, U.S. Army Corps of Engineers, U.S. Bureau of Reclamation, and the U.S. Fish and Wildlife Service.

A.M. Snyder

Assist in loan acquisitions and curation of freshwater mussels of the genus *Anodonta* for T.L. Myers, Ph. D. an independent Arizona researcher investigating the taxonomic relationships of this species in central and western Mexico.

Retrieved, labeled, and organized 104 USGS tank specimens of *Gila* spp. (Cyprinidae) for Royal D. Suttkus, Curator Emeritus, Museum of Natural History, and Tulane University for re-examination due the destruction of his files in the 2004 hurricane, Katrina.

Temporary storage and formal transfers of tissues for the New Mexico Environment Department and New Mexico Department of Game and Fish.

Special informational tours of the MSB Division of Fishes during the 2006 Society for the Protection of Natural History Collections (SPNHC) meetings in Albuquerque: Mark Dugo, Mississippi Museum of Natural Science, Larry Page, Curator University of Florida State Museum, Judith Chupasko, Curatorial Associate Museum of Comparative Zoology Harvard, Henry L. Bart, Director Tulane University Museum of Natural History. Detailed descriptions on how to collect, preserve, and document fish specimens for deposition in museum of natural history: Wyoming Department of Game and Fish, U.S. Fish and Wildlife Service New Mexico Fisheries Research Office, Bureau of Land Management in Las Cruces NM, New Mexico Department of Game and Fish-Malacology Biologist.

Detailed descriptions on how to curate fish collections or current products for use in fish collections: Museum of Northern Arizona, Flagstaff, AZ., U.S. Fish and Wildlife Service Warm Springs GA., Weber State University Ogden UT, Insect Collections-Lepidoptera Museum of Comparative Zoology, Harvard Cambridge, MA., Field Museum, Chicago IL., Arizona State University, Tempe AZ., Australian Commonwealth Scientific and Research Organization the Hobart Laboratories, Tasmania AU, University of Montana, Missoula MT., Texas A&M at Corpus Christi, TX., University of Alabama, Tuscaloosa AL.

T.F. Turner

Museum of Southwestern Biology Executive Committee and ad-hoc member of the Museum of Southwestern Biology Space Committee;

University of New Mexico Faculty Senate Arts and Sciences Representative

11. ADVANCED STUDY, HONORS, AWARDS, FELLOWSHIPS, ETC.

None.

12. DONATIONS AND GIFTS RECEIVED

Part of W.J. Koster Library and Archives maintained by M.C. Molles, Curator Emeritus
Division of Arthropods, Museum of Southwestern Biology.

13. CURRENT STAFF

A. Faculty/Staff

W. Howard Brandenburg, Senior Field Research and Taxonomic Services
Ayesha S. Burdett, Ph. D., Postdoctoral Research Associate
Michael A. Farrington, Senior Field Research and Taxonomic Services
Megan J. Osborne, Ph. D. Research Assistant Professor
Steven P. Platania, Associate Curator of Fishes
Lee E. Renfro, Field Research and Taxonomic Services
Stephen T. Ross, Curator Emeritus and UNM Adjunct Professor of Biology
Alexandra M. Snyder, Collections Manager
Thomas F. Turner, Curator of Fishes and UNM Associate Professor of Biology

B. Graduate students

Melanie S. Edwards, Ph.D. (completed fall 2006)
Thomas L. Kennedy, Ph.D.
Trevor J. Krabbenhoft, Ph.D. (M.S. completed University South Carolina, Columbia. Thesis:
Parallel and convergent evolution of endemic fishes within and among Carolina bay lakes.
Maureen B. Peters, M.S. (completed spring 2006)
Wade D. Wilson, Ph.D.

C. Undergraduate Student Workers and Volunteers

Christine L. Cooper, Research Assistant Turner Lab
Tracy Diver, Research Assistant Turner Lab
Alicia M. Hodson, MSB Curatorial Assistant
Nedra Iwerks, Research Assistant MSB Special Projects
Aimee Marek, NSF-REU Research Assistant
Tamara L. Max, MSB and Turner Lab Assistant
Christine M. Poandl, MSB Curatorial Assistant
Cynthia Rivera, MSB Curatorial Assistant

14. MUSEUM ASSOCIATES

A. Curatorial Associates

David L. Propst, Ph. D. New Mexico Dept. of Game and Fish, Santa Fe

B. Research Associates

James E. Brooks, U.S. Fish and Wildlife Service, Albuquerque

Brooks M. Burr, Ph.D. Southern Illinois University, Carbondale

Astrid Kodric-Brown, Ph.D. University of New Mexico, Albuquerque

Robert K. Dudley, Ph. D. American Southwest Ichthyological Researchers, Albuquerque

DIVISION OF GENOMIC RESOURCES

1. DIVISION HIGHLIGHTS

The Division of Genomic Resources (DGR) of the Museum of Southwestern Biology (MSB) is a centralized repository for cryogenic material from all MSB divisions at the University of New Mexico and other individuals and institutions worldwide for which archival agreements are extant. The DGR frozen tissue collection is taxonomically broad and contains approximately 500,000 tissues samples. It is ranked as one of the largest tissue collections in the Western Hemisphere.

Special activities included collection manager Cheryl Parmenter serving as the NSCA Co-Host for the SPNHC-NSCA joint annual meeting May 2006, held in Albuquerque. She also continued to volunteer for the USFWS Mexican Wolf Reintroduction Program during the wolf captures. Cheryl was also instrumental in the grant writing process for the National Tuberculosis Archive Project and helping the National Forensics Laboratory expand a genetic archive from DGR specimens to assist with law enforcement activities world-wide.

In 2006, Curator Terry Yates contributed to the scientific community through his attendance and presentations at over 30 meetings with presentations to scientific societies, he maintains 24 board appointments representing the University of New Mexico (see details below).

In addition, Curator Terry Yates participated with a group of researchers on the NSF-funded Ecology of Infectious Diseases grant to forecast the 2006 risk of hantavirus to residents of northern New Mexico and southern Colorado (Glass et al. 2006). Professor Greg Glass of Johns Hopkins University and UNM colleagues collaborated on a paper that warned of increased risk of Hantavirus Pulmonary Syndrome in the spring and summer of 2006. The forecast was based on analyses in 2005 of satellite imagery showing increased areas of deer mouse (*Peromyscus maniculatus*) abundances. The paper, published prior to the period of highest human disease occurrence, predicted a higher than normal risk of human disease average human case numbers should normally be 4 cases per year and the results of the 2006 season showed that there were 9 human cases. This project demonstrated the capability of using remotely sensed imagery to forecast human disease risk associated with rodent abundances. Vouchers and blood samples from the ground-truthing of the rodent populations and hantavirus infections were processed through the DGR of the MSB.

2. TABLE OF COLLECTION USE

Collection Growth (Specimens catalogued)	Loans (outgoing)	Loans (incoming)	Visitors	Information Requests Personally Responded to	Publications Citing MSB Specimens
16,775	57	0	120	651	?

3. COURSES USING THE COLLECTIONS.

BIOL 402/502 Advanced Field Mammalogy Fall 15 students
ART HI 407 Museum Studies Fall 20 students
BIOL 599, Thesis Winter, Spring and Summer semesters, 6 student
BIOL 699, Dissertation Winter, Spring and Summer semesters, 11 students

4. COURSES TAUGHT BY MSB PERSONNEL

A.Faculty/Collection Managers

T.L. Yates

BIOL 699, Dissertation, 2 students

B.Graduate Students

None.

5. COLLECTION MANAGEMENT

This year, DGR personnel focused on data verification of our multi-institutional on line ORACLE database. We archived over 16,775 new samples, including tissues of mammals from Alaska, British Columbia, Montana, New Mexico, and the Yukon Territory, and bird samples from California, Colorado, Connecticut, Florida, New Mexico, New York, and Texas. In total, 19,000 new NK numbers were issued to researchers worldwide. We processed 57 outgoing loans containing 4,876 individual specimens to 13 states and 3 foreign countries. Of these, 32 loans were for our own UNM projects and undergraduate and graduate students.

4. AWARDS, GRANTS, AND CONTRACTS.

\$2,467,243. Centers for Disease Control and Prevention. 048487. *Longitudinal Studies of Rodent Reservoirs of Hantaviruses in the Southwestern United States*. **T.L. Yates**, PI. 10/96-9/06. \$181,355 (F&A, MSB split).

\$2,297,552. National Science Foundation and National Institutes of Health. 048542. *Ecological Drivers of Rodent-borne Disease Outbreaks: Trophic Cascades and Dispersal Waves*. **T.L. Yates**, PI. 10/03-08/06. \$7,775. (F&A,?).

????? National Science Foundation and National Institutes of Health. 048764. *Ecological Drivers of Rodent-borne Disease Outbreaks: Trophic Cascades and Dispersal Waves*. **T.L. Yates**, PI. 10/01-05/06. \$246,052 (F&A MSB split).

\$4,200,000. National Science Foundation. 15547. *Sevilleta LTER: Long Term Ecological Research Program*. **T.L. Yates**, Co-PI. 10/02–10/06. \$?. (F&A, ?).

\$1,400,000. Office of Naval Research. 048664. *Predictive Modeling, Visualization, and Pattern Recognition Utilizing Large and Complex Databases*. **T.L. Yates**, PI. 6/03-05/06. **\$67,489** (F&A, ?).

\$51,000,000 cap. Defense Threat Reduction Agency. 798055. *University Strategic Partnership, Active Task Orders*-Numerous separate projects including biological threat reduction in the former USSR. **T.L. Yates**, PI, 04/03 – 11/06. \$4,427,854/year (IDC, \$0).

7. PUBLICATIONS.

A. Books, Chapters, Edited Volumes

None.

B. Journal Articles

Gessler, D., C. Dye, P. Farmer, M. Murray, T. Navin, R. Reves, T. Shinnick, P. Small, T.L. Yates, G.A. Simpson. 2006. National Tuberculosis Archive. *Science Magazine*, 311:1245-1246.

Salazar-Bravo, J.P., J. Carleton, R.D. Bradley, R.J. Baker, T.L. Yates, L.A. Ruesday. Voucher specimens for SARS-linked bats. *Science Magazine* 311:1099-1100.

Glass, G.E., T.M. Shields, R.R. Parmenter, D. Goade, J.N. Mills, J. Cheek, J.A. Cook, and T.L. Yates. 2006. Predicted Hantavirus risk in 2006 for the Southwestern U.S. *Occasional Papers, Museum of Texas Tech University*, 255:1-16.

Dragoo, J.W., K.E. Moore, E.P. Lessa, J.A. Cook, J. Lackey, J. Alden, T.L. Yates. Phylogeography of the deer mouse (*Peromyscus maniculatus*) provides a predictive framework for research on Hantaviruses. *Journal of General Virology*. 87:1997-2003.

B. Web-Based

None.

D. Technical Reports

T.L. Yates, C. Hice, C.A. Parmenter. 2006. Longitudinal studies of Hantavirus in rodent populations of the American Southwest. Semi-Annual Report for New Mexico, November 2005-June 2006.

T.L. Yates, C. Hice, C.A. Parmenter. 2006. Longitudinal studies of Hantavirus in rodent populations of the American Southwest. Final Report for New Mexico, August 1994- May 2006.

E. Theses/Dissertations Completed

None.

F. Work In Progress

None reported.

G. Publications and reports based on museum specimens by researchers excluding Museum staff, students and Associates.

Unknown.

8. ACTIVITIES IN LEARNED SOCIETIES.

A Invited or plenary talks

Yates, T.L. 2006. National Research Council of the National Academies, Contributions of Remote Sensing for Decisions about Human Welfare, The National Academies, Applying Remote Sensing to Infectious Disease from the Scientific and Technical Perspective, Washington, D.C., January.

Yates, T.L. 2006. Millbrook Rotary Symposium on Global Affairs, The Rotary Club of Millbrook, NY, Are We Creating Our Own Hot Zones, Millbrook, N.Y., March.

Yates, T.L. 2006. The Future of the Electric Utility Industry, Opening Remarks, Iberdrola Headquarters, Madrid, Spain, September.

A. Contributed talks or posters.

Terry Yates

Many.

Cheryl Parmenter

Archiving Specimens in the Division of Genomic Resources. National Center for Genome Resources, Santa Fe, NM. August.

C. Attendance at professional meetings.

Cheryl Parmenter

NSCA/SPNCH Combined Annual Meeting, Albuquerque, NM 2006. Served as Co-host. National Center for Genome Resources, U54 Planning Meeting, Santa Fe, August 5th 2006.

Terry Yates

Washington State University Symposium Pullman Washington January
CRPGE Winter Executive Committee Mtg Washington, DC February
Institute of Ecosystems Studies Symposium Millbrook, NY March 23-25
NLR Board of Directors Mtg Washington, DC April
American Institute for Biological Sciences Board Mtg Washington, DC May
NLR Board of Directors Mtg Washington, DC June

American Society of Mammalogist Annual Mtg Amherst, MA June
 CRPGE Summer Executive Committee Mtg South Portland June
 Iberdrola Energy Summit Madrid Spain September
 NLR Board of Directors Mtg Chicago, IL September
 METI Japan September 2006
 National Academies Board on Life Sciences Mtg Irvine, CA October
 Los Alamos National Lab Science & Technology Committee Mtg New Mexico November
 Natural Science Collections Alliance Board of Directors Mtg Washington, DC November
 Los Alamos National Lab Oversight Committee Mtg Los Alamos, NM November
 National Center for Genome Resource Board of Directors Mtg Santa Fe, NM November
 NASUGLC Annual Mtg Houston, Tx November
 Ibero-America Science and Technology Education Consortium Board of Directors Mtg Miami, FL November
 NLR Board of Directors Mtg Denver, CO December
 NSCA/SPNCH Combined Annual Meeting, Albuquerque, NM

D. Service as editor or on editorial board of a journal.

None

E. Service as officer of professional society or organization.

Terry Yates

Chairman, Finance Comm, Ibero American Science & Tech. Education Consortium (ISTEC), Nov. 2006
 Board of Directors, The National Assoc. of State Universities & Land-Grant Colleges, Nov. 2006-2009
 Board Member, Board of Life Sciences, The National Academies of Sciences, October 2006-June 2009
 Board of Directors, New Mexico LambdaRail Inc., (NMLR), September 2006-present
 Board of Directors, New Mexico Consortium Inc., (NMC), August 2006-present
 Board of Directors, Ibero American Science & Tech. Education Consortium (ISTEC), 2005-present
 Board of Directors, National Center for Genome Resources (NCGR), Nov. 2005-present
 Chair-elect, Council on Research Policy & Graduate Education (CRPGE), June 2006-present
 President, Natural Science Collections Alliance, 2005- present
 Board of Directors, National LambdaRail Incorporated, 2004-present
 Executive Board, Council on Research Policy & Graduate Education (CRPGE), 2004- present
 Chairman, New Mexico Research Council, 2003-present
 President, Monzano Conservation Foundation, 2003-present
 Board of Directors, NM Technology Research Collaborative, 2003-present
 Executive Board of Directors, Science & Technology Corporation @ UNM, 2001- present
 Board of Directors, La Semilla Institute, 2001-present
 Trustee, Southwestern Association of Naturalists
 Board of Directors, *Peromyscus* Stock Center

Commission Member, Albuquerque-Chihuahua City Bilateral Commission, January 2005 - present

Board Member, All Species Foundation

Chairman, Board of Trustees, Society of Systematic Biology, 1999-present

Chairman, Board of Trustees Reserve Fund and Pooled Income Fund, American Society of Mammalogists, 1998-present

9. OTHER PROFESSIONAL ACTIVITIES.

A. Colloquium Presentations.

Terry Yates

Many

B Presentation to General Audience in a Scholarly Capacity.

Terry Yates

NSF

C. Presentations in a Scholarly Capacity at Hearings, Workshops, Legislative Committees, etc.

Terry Yates

Many, including local rotary and other business groups.

D. Service in a Scholarly as a Member of a Local, State, Regional or National Committee, Panel etc.

Terry Yates

Program Committee, American Society of Mammalogists

Systematic Collections Committee, American Society of Mammalogists

Development Committee, Southwestern Association of Naturalists

International Commission on Systematic Collections, IUBS, Section of Thereology

Species Survival Commission (IUCN)-Insectivora, Tree Shrew, and Elephant Shrew Specialist Group

Species Survival Commission-Rodent Specialist Group

Small Mammal Recovery Team-USFW

NSF/USAID Interagency Steering Committee

Search Committee-Molecular Analyst, Smithsonian Institution

Global Environmental Facility-World Bank-Biodiversity Subcommittee

Latin American Biodiversity Committee-Smithsonian Institution

Bio Task Force on Environmental Biology, The NSF

Research Needs Committee-Ecological Society of America

International Relations Committee, Chair, ASM.

OSTP Subcommittee on weapons of mass destruction

NEON Design Team, National Science Foundation

Albuquerque-Chihuahua City Bilateral Commission
CRPGE Executive Committee (Council on Research Policy & Graduation Education of the
National Assoc. of State University and Land-Grant Colleges)
Latin American Institute Liaison Committee, Dept. of Biology, 1985-present
Coordinating Committee for Latin American Exchanges Land Use Committee
International Policy Committee
Grants Committee Latin American Institute
Academic Freedom and Tenure Committee
Council on the Americas
Integrative Cancer Biology Program Advisory Board, UNM Health Sciences Center
IACUC Committee
Annual Research Lecture Committee
Institutional Bio-Safety Committee
UNM Strategic Planning Committee
NM Research Council
UNM Research Cabinet
UNM Economic Development Council
UNM Business & Industry Advisory Cabinet
UNM Emergency Operations Center, 2006

E. Journal Referee

Terry Yates

Journal of Mammalogy, Bioscience

Andrew Hope:

Journal of Biogeography

10. SERVICE.

A. Symposia, Workshops, Eonferences, etc. Sponsored, Organized, Held etc.

Terry Yates

Many

B. Public Service

Terry Yates

President of Placitas Homeowners Association

Visitors

Johns Hopkins University

LTER

USGS

Hantavirus Crews

EID Crew

CDC
MSB Museum Divisions

Students

Chile-Hantavirus personnel
Dr. Ronald Van den Bussche
National Center For Genomic Resources Personnel

11. ADVANCED STUDY, HONORS, AWARDS, FELLOWSHIPS, ETC.

Terry Yates

Research Associate -The museum, Texas Tech University.
Elected Board of Governors, Southwestern Association of Naturalists
Appointed as one of two American representatives International Commission on Systematic Collections, IUBS
Appointed Research Associate, American Museum of Natural History, 1985-present
Elected Trustee, Southwestern Association of Naturalists
Elected President, Natural Science Collections Alliance (NSCA), 2005-present
President-elect, Council on Research Policy & Graduate Education (CRPRGE), National Society of State Universities and Land Grant Colleges

12. DONATIONS AND GIFTS RECEIVED

No donations or gifts, but many archival contracts with people to deposit tissues in our collection.

13. CURRENT STAFF

Faculty

Terry Yates: Curator of Genomic Resources, Museum of Southwestern Biology. Vice President for Research & Economic Development. Professor, Department of Biology, Professor, Department of Pathology.

Staff

Cheryl Parmenter: Collection Manager 0.5FTE, Data Manager CDC 0.5FTE

Students

Andrew Hope: Graduate Assistant 0.5FTE fall & spring, 0.25FTE summer.
Comparative Phylogeography of the *Sorex cinereus* Complex: Ph.D. candidate

Kendra Anderson Undergraduate workstudy, 0.5FTE.

14. MUSEUM ASSOCIATES

A. Curatorial Associates

None

B. Research Associates

J. Scott Altenbach, UNM Department of Biology
Sydney Anderson, American Museum of Natural History, New York
Robert J. Baker, The Museum, Texas Tech University, Lubbock, TX
Troy L. Best, Department of Biology, Auburn University
Jerry Dragoo, UNM Department of Biology
Jennifer Frey, Eastern New Mexico University, Portales, NM
Scott L. Gardner, Dept. Nematology, Curator, University Nebraska.
Sarah B. George, Director, Utah State Museum.
Gary L. Graham, Bat Conservation International
David J. Hafner, New Mexico Museum Nat. History
Bruce J. Hayward, Department of Biology, Western New Mexico University
Edward J. Heske, Illinois Biological Survey
R. Dewitt Ivey, Retired. Active in botany, mammals
Clyde Jones, The Museum Texas Tech University
Dwight W. Moore, Emporia State University
Robert Parmenter, Valles Caldera Preserve- Chief Scientist
James L. Patton, Museum of Vertebrate Zoology, University of California
Luis Ruedas, Portland State University, Portland, Oregon
Jorge-Salazar Bravo, Texas Tech University, Lubbock, TX
Richard A. Smartt, New Mexico Museum of Natural History.

HERBARIUM

1. DIVISION HIGHLIGHTS

By the end of 2006, the UNM herbarium contained more than 111,500 fully accessioned and cataloged specimens of vascular and non-vascular plants. Specimen label information is electronically captured and made available on the Internet to the international research community via the INRAM Biodiversity Website (biodiversity.inram.org/). In addition, we are a data provider to the Global Biodiversity Information Facility (GBIF).

A major activity in 2006 included co-hosting a joint meeting of two professional museum-related organizations. As MSB co-host, Jane Mygatt was involved in hosting the joint meeting of the Society for the Preservation of Natural History Collections (SPNHC) and the Natural Science Collections Alliance (NSCA). The meetings included a technical program, special sessions, special break out sessions, field trips, museum tours, a reception and a banquet. The venue was the Hotel Albuquerque in Old Town. Herbarium graduate student Chris Frazier, along with Tom Giermakowski (Amphibians and Reptile Collection Manager) were crucial to the success of the meetings in providing webmaster skills, program and workshop development, and coordinating speakers and presentations.

Lowrey and Mygatt are collaborating with Jean-Luc Cartron, Sandy Brantley and David Lightfoot for a book project entitled *A Field Guide to the Flora and Fauna of the Middle Rio Grande*. Mygatt has been making collections and photographing the flora along the Rio Grande. There will be approximately 215 selected plants with information on identification, habitat, blooming period, natural history information, and taxonomy (publication goal 2008).

The UNM Herbarium continues to develop and maintain the following websites:

The website for the UNM Herbarium. Content contributed by Lowrey and maintained by Mygatt: <http://www.msb.unm.edu/herbarium> Created: 1997.

Astereae Working Group: The website presents information on the Astereae Tribe of the Asteraceae. Membership of the working group is currently 28 scientists and is part of the Compositae Alliance. <http://www.msb.unm.edu/astereae>. Created and maintained by T. Lowrey in 2004.

Pteronia Research: The website presents information on the revisionary research of the genus *Pteronia* in southern Africa. <http://www.msb.unm.edu/pteronia> Created and maintained by T. Lowrey in 2004

INRAM Gateway to New Mexico Biodiversity: The website for the on-line specimen database for natural history collections in New Mexico. Lowrey is the PI for the NSF-funded project. Designed in collaboration with C. Frazier and B. Milligan. <http://biodiversity.inram.org> Created 2003.

2. TABLE OF COLLECTION USE

Collection Growth (specimens catalogued & entered in collection)	Loans/# specimens (outgoing)	Loans (incoming)	Visitors (not including tour groups)	Information Requests Personally Responded to	Publications Citing MSB Specimens
2403	18/850	6/360	184	75	6

3. COURSES USING THE COLLECTIONS

BIOL. 463, Flora of New Mexico: Fall semester, 14 students

BIOL. 402/502, Natural History of New Mexico Plants Summer semester, 15 students

4. COURSES TAUGHT BY MSB PERSONNEL

A. Faculty/Collection Manager

Lowrey, T.K.

BIOL. 463, Flora of New Mexico: Fall, 14 students

BIOL. 402/502L, Natural History of the New Mexico Flora, Summer, 15 students

BIOL. 517, Basic Graduate Evolution, Spring, 12 students

Hanson, D.T.

BIOL. 502 Environmental Biophysics, Spring, 8 students

BIOL. 204 Plant and Animal Form and Function, Fall, 87 students

BIOL. 478, Plant Physiology with lab, Spring, 10 students

BIOL. 402 Environmental Biophysics, Spring, 1 student

B. Graduate Students

Calabrese, L.

BIOL. 463L, Flora of New Mexico: Fall semester, 14 students

5. COLLECTION MANAGEMENT

Herbarium staff processed and added 2,403 new acquisitions to the collection. The UNM Herbarium received 13 gifts and 6 exchanges of specimens, totaling 1,417 specimens. The majority of specimens were collected from New Mexico.

The herbarium logged more than 184 visits from the botanical community. We average 1-2 information requests per week by e-mail and phone and the INRAM website receives more than 400 hits per month for herbaria in the state. We continue geo-referencing the collections using part time graduate student assistance. In addition, we continue to image specimens in the collection, and to-date have imaged our Type specimens, the state's threatened and endangered

taxa, New Mexico collections in the Cactaceae (2,676 specimens) and work has begun imaging the Asteraceae.

The herbarium processed 16 outgoing UNM loans to botanists throughout the country, and 2 borrowed loans were sent back to the lending institutions. In addition, 6 loans were returned to UNM with annotations that were then reincorporated into the collections.

We continue to update the nomenclature as the Flora of North America volumes are published. In anticipation of the 2006 joint meeting, we replaced and labeled thousands of genus folders and replaced the family drop-down tags in the cabinets.

Accessions for 2006:

- 2006.01 Gene Jercinovic 3 specimens
- 2006.02 BRY 292 exchange
- 2006.03 Bob Sivinski 40 Blue Hole Cienega specimens
- 2006.04 Bob Sivinski 160 Forest Service deaccessions
- 2006.05 Bob Sivinski 117 Sandia Flora vouchers
- 2006.06 BRY exchange 3 isotypes
- 2006.07 NHNM 27 Bandelier specimens
- 2006.08 WTU exchange 26 Hepatics
- 2006.09 ARIZ 32 specimens
- 2006.10 MO exchange 302 specimens
- 2006.11 UT 4 fern type specimens
- 2006.12 ASC exchange 76 southwestern specimens
- 2006.13 UTEP exchange 23 Australian Asteraceae
- 2006.14 UTEP 7 specimens
- 2006.15 UNM 100 student collections
- 2006.16 Bob Sivinski 2 specimens
- 2006.17 Gene Jercinovic 17 specimens
- 2006.18 Dave Lightfoot 60 Lichens
- 2006.19 Bob Sivinski 126 specimens

6. AWARDS, GRANTS, AND CONTRACTS

\$40,000. U.S. Fish And Wildlife Service. A Field Guide to the Flora and Fauna of the Middle Rio Grande Bosque. PI: Jean-Luc Cartron. Co-PIs: D. Lightfoot, **J. Mygatt**, S. Brantley, and **T.K. Lowrey**. 09/06-09/07. \$40,000 (F&A, \$0).

\$40,000. Sandia National Laboratories Sandia-University Research Program (SURP). #336765. Inorganic carbon usage by the marine cyanobacterium *Synechococcus* WH8102. **D.T. Hanson**, PI. 10/05-8/06. \$36,000 (F&A, \$3,200).

\$143,998. Ecosystem Science, National Science Foundation. #0516113. The N cycle in semi-arid grasslands: A fungal loop? R. Sinsabaugh, PI, co-PI's; S. Collins, **D.T. Hanson**, and M. Allen. 07/05-07/06. (1 year proof of concept funding). \$70,500 (F&A, \$23,500).

\$160,000. Institute of Geophysics and Planetary Physics at LANL. #09566-001-05. Biosphere-atmosphere CO₂ exchange of terrestrial ecosystems: combining high resolution measurements and models to understand the global atmospheric carbon budget. **D.T. Hanson**, PI. 10/04-09/07. \$20,000 (F&A, \$0)

\$4,000. UNM Research Allocation Committee. PEPC activity in C₃ plants. **D.T. Hanson**, PI. 09/06-09//07. (F&A, \$0)

Joanna Redfern (Ph.D. advisee)

Forrest Shreve Field Research Award, Ecological Society of America

Alvin R. and Caroline G. Grove Summer Scholarship, Biology Dept. UNM, April

Research Project and Travel Grant, Office of Graduate Studies, UNM, February

New Mexico Native Plant Society Grant, January

7. PUBLICATIONS

A. Books, Book Chapters, Edited Volumes

Lowrey, T.K. and L. Shultz. *Sphaeromeria* (Asteraceae). 2006. In, Flora of North America. pp 499-502. Oxford University Press.

B. Journal Articles

Flexas, J., M. Ribas-Carbó, **D.T. Hanson**, J. Bota, B. Otto, J. Cifre, H. Medrano, N. McDowell, and R. Kaldenhoff. 2006. Tobacco aquaporin NtAQP1 is involved in mesophyll conductance to CO₂ in vivo. *The Plant Journal*. 48:427-439.

C. Web-Based

None.

D. Technical Reports

Hanson, D.T. Year-end Report of Research Progress: Sandia-University Research Program (SURP) between Sandia National Laboratories. Biology Department, University of New Mexico. Project title: *Inorganic carbon usage by the marine cyanobacterium Synechococcus WH8102*

E. Theses/Dissertations Completed

None.

F. Work In Progress (Only in press and already submitted)

Lowrey has contributed taxonomic treatments to Flora North America—*Sphaeromeria* (Asteraceae) (1996), Jepson Manual of the California Flora- *Sphaeromeria* (In press), and the Flora of the San Juan Basin. K. Heil, S. O’Kane, and L. Reeves, eds. Missouri Botanic Gardens Press- *Townsendia* (In Press). Mygatt has contributed taxonomic treatments to the Flora of the

San Juan Basin. K. Heil, S. O’Kane, and L. Reeves, eds. Missouri Botanic Gardens Press-Urticaceae and Ulmaceae. (In Press).

G. Publications/Reports Based on MSB Specimens/Data by Outside Researchers

Chauvin, Y. 2006. Plant distribution reports: First New Mexico record of *Loeflingia squarrosa*. The New Mexico Botanist 35:3.

Hartman, R.L. 2006. New combinations in the genus *Cymopterus* (Apiaceae) of the southwestern United States. Sida 22(2):955-957.

Keller, C. 2006. Plant distribution reports: *Saxifraga hirculus* in Colfax County. The New Mexico Botanist 35:3.

Sivinski, R.C. 2006. Plant distribution reports: New Mexico record of *Colutea arborescens* from Bernalillo County. The New Mexico Botanist 35:3.

Sivinski, R.C. 2006. Plant distribution reports: First report of this variety in New Mexico of *Cryptantha nevadensis* var. *rigida* . The New Mexico Botanist 35:3.

Sivinski, R.C. 2006. Plant distribution reports: New Mexico record of *Ostrya knowltonii* from Otero County. The New Mexico Botanist 36:8.

8. ACTIVITIES IN LEARNED SOCIETIES

A. Invited/Plenary Talks and/or Seminars

None.

B. Contributed Talks/Posters

Rice, S.K., **D.T. Hanson** and L. Aclander. Functional traits of Sphagnum moss canopies as they relate to photosynthetic performance evaluated using phylogenetically independent contrasts. Botany 2006. American Bryological and Lichenological Society; Chico, CA; July.

Hanson, D.T., M. Barbour, and N. McDowell. Rapid shifts in light-enhanced ¹³CO₂ enrichment of leaf respiration: Insight from 10Hz on-line measurements of ¹³CO₂ exchange during light/dark transitions. Plant Biology 2006; American Society of Plant Biologists; Boston, MA; July.

Sanchez Monzon, S., and **D.T. Hanson**. Activation of Red Form I Algal Rubisco from *Plocamium cartilagineum*. Plant Biology 2006; American Society of Plant Biologists; Boston, MA; July.

Bishop, Y., **D.T. Hanson**, G. Johnson, and L. Barton. The impact of toxic metals on fluorescence of PSII and chlorophyll in soybeans. 13th International Symposium on Iron Nutrition and Interactions in Plants, Montpellier, France, July.

Brouillet, L., **T.K. Lowrey**, L.E. Urbatsch, S.J. Wagstaff, V. Karaman, & G. Sancho. Molecular Phylogeny, evolution, and biogeography of the tribe Astereae. International Compositae Symposium, Barcelona, Spain. July.

Crawford, D.J. and **T.K. Lowrey**. Genetic diversity in the colonizing ancestors of Asteraceae endemic to oceanic islands: Baker's Law and polyploidy. International Compositae Symposium, Barcelona, Spain. July.

Lowrey, T.K. 2006. Large-scale Ecological Research Projects(LTER & Neon): Challenges and Opportunities for Herbaria. Botany 2006. Chico State University, August.

C. Attendance at Professional Meetings

Hanson, D.T.

Plant Biology 2006, American Society of Plant Biologists, Boston, MA; August.

Lowrey, T.K.

International Compositae Symposium, Barcelona, Spain. July.

Botany 2006. Chico State University, August.

Mygatt, J.

21st Annual Meeting of the *Society for the Preservation of Natural History Collections* (SPNHC). Albuquerque, NM. May.

D. Service as Editor or on Editorial Board of a Journal

None.

E. Service as Officer of Professional Society/Organization

Hanson, D.T.

Acting co-head of the Southwestern subsection of the Western Sectional Society of the American Society of Plant Biologists (appointed).

Lowrey, T.K.

Chair, Collections Committee, American Society of Plant Taxonomists (appointed).

Lowrey, T.K.

Secretary, Sigma Xi Chapter, University of New Mexico (elected).

9. OTHER PROFESSIONAL ACTIVITIES

A. Presentation to General Audience in a Scholarly Capacity (*presenter)

***Lowrey, T.K.** and **J. Mygatt**. Activities of the UNM Herbarium. 2006 Annual Meeting, New Mexico Native Plant Society, Univ. Texas, El Paso, August.

B. Presentations in a Scholarly Capacity at Hearings, Workshops, Legislative Committees, etc.

None.

C. Scholarly Service as a Member of a Local/State/Regional/National Committee, Panel, etc.

Hanson, D.T.

Biology Department Seminars

Greenhouses

Graduate Admissions Committee

External Advisory Board, UNM Mass Spectrometry Facility

Lowrey, T.K.

Arthropod Biology/Curator of Arthropods Faculty Search Committee, 2005-2006

Review Panel Member, Biological Research Collections, Division of Environmental Biology,

National Science Foundation, October

Member, New Mexico Rare Plant Technical Council

Academic Freedom and Tenure Committee

Faculty Senate Library Committee

Mygatt, J.

Member, New Mexico Rare Plant Technical Council

Member, Society for the Preservation of Natural History Collections (web committee)

D. Journal Referee

Lowrey, T.K.

Taxon (1), Systematic Botany (1), Lundelliana (1), Journal of Curatorial Practice (1)

E. Hosting Professional Colloquia and Groups

Mygatt, J.

MSB Co-host. Society for the Preservation of Natural History Collections (SPNHC) and Natural Science Collections Alliance (NSCA) joint meeting. Albuquerque, NM. May.

10. SERVICE

A. Symposia, Workshops, Conferences etc. Sponsored, Organized, Held, etc.

Lowrey, T.K.

Symposium Organizer, Supporting New Mexico Herbaria. New Mexico Native Plant Society Meeting. University of Texas, El Paso. August.

B. Public Service

Hanson, D.T.

Mentored High School student from St. Pius: Bianca Garcia, Fall science fair project (she won second place for her project “How effective is algae at producing hydrogen?” in Jan 2007)

Lowrey, T.K.

Botanical Consultant, Albuquerque Journal-John Fleck, Science Reporter

Mygatt, J.

Science Fair Judge. NWNM Regional Science & Engineering Fair. Special Botany Award category for the New Mexico Native Plant Society. March.

UNM Student Health Center’s ‘Health Fair’. Supplied plants used for section on plant allergies. September.

11. ADVANCED STUDY, HONORS, AWARDS, FELLOWSHIPS, ETC.

Hanson, D.T.

Inducted into Sigma Xi, Full Member, May

12. DONATIONS AND GIFTS RECEIVED

None.

13. CURRENT STAFF (List Faculty/Staff, Students and Volunteers)

A. Faculty/Staff

Lowrey, T.K., Curator

Mygatt, J., Collection Manager

B. Graduate students

Calabrese, L. Ph.D. candidate. Fall and Spring Graduate Assistant for Herbarium/Flora of NM

C. Undergraduate Student Workers and Volunteers

Raniszewski, A. Undergraduate work-study student. (Shared position with Zickefoose).

Zickefoose, K. Undergraduate work-study student (Shared position with Raniszewski).

14. MUSEUM ASSOCIATES

A. Curatorial Associates

Hanson, D.T., UNM Faculty (Curator of Bryophytes)

Sivinski, R., New Mexico State Botanist

B. Research Associates

Bleakly, D., Botanical Consultant

Carter, J., Emeritus Professor, Colorado College and Botanist

Dunmire, W., Retired U.S. National Park Service and Author

Keller, C., Retired, Los Alamos National Laboratory

Knight, P., Botanical Consultant

Tonne, P., Natural Heritage New Mexico, Rare Plant Botanist

DIVISION OF MAMMALS

1. DIVISION HIGHLIGHTS

The MSB Division of Mammals is a hub of activity within the environmental and health sciences at UNM. A diverse array of students, faculty and outside investigators use materials from this collection in research, teaching and service initiatives. There are currently over 150,000 catalogued specimens (with another 50,000 needing to be catalogued) and numerous loans are made each year. Grants and contracts to DOM staff that were current in 2006 totaled about \$1,650,400, generating F&A revenue of about \$402,600 for UNM in 2006. More importantly, the DOM has become an integral and effective part of the Department of Biology efforts to meet the mission of the university.

A. UIMNH Collection

The DOM has acquired a large portion (ca. 33,000 specimens) of the orphaned University of Illinois Museum of Natural History (UIMNH) mammal collection. The collection is worldwide in scope with specimens representing 40 countries and all continents except Antarctica. Extremely diverse taxonomically, 20 orders, 249 genera and 483 species are represented, and wide ranging temporally (1876-1989). The collection represents a good portion of the life's work of one of the most influential mammalogists of the late 20th Century, Donald Hoffmeister. A past President and H.T. Jackson Awardee of the American Society of Mammalogists, Hoffmeister trained 14 doctoral and 18 masters students using this collection (e.g., R. Lee, W.Z. Lidicker, R.G. Van Gelder), including UNM's new president, David Schmidly. The collection served as the basis for a number of works by Hoffmeister (e.g. *Mammals/A Guide to Familiar American Mammals*, *Handbook of Illinois Mammals*, *Mammals of the Grand Canyon*, *Mammals of Illinois*, and the monumental *Mammals of Arizona*).

The collection has great taxonomic and systematic value, containing twenty-four "types" of 14 North American and 7 Southeast Asian taxa, 17 of which are holotypes. The collection is also historically important as it includes specimens collected by many of the early pioneers of mammalogy (e.g. Attwater, Burt, Cockrum, Hall, Keays, Kellogg, Taylor, Van Gelder). We are currently working on the curation of this accession.

B. ARCTOS

The migration of the DOM electronic database to ARCTOS has dramatically increased the range and volume of use of the collection. The range and number of MSB web-based "hits" have increased substantially since full implementation of this system in 2004. Using Google Analytics we are now able to more closely track usage. Data for May-Dec 2006 show researchers worldwide (106 countries) are actively utilizing these data (e.g. 15,977 visitors and 166,334 page views) and are accessing them not only directly but also through a diverse array of referring sources (e.g. GenBank). These data demonstrate the power and accessibility benefits that current data basing methods are capable of achieving. Future efforts to expand our use of ARCTOS (e.g., adding fieldnotes, GenBank sequences, and publications linked to individual MSB specimens) will further enhance the use and value of our collection.

C. New Collection Manager Hired

Jon Dunnum was hired in April from Texas Tech University to fill the position of Senior Collection Manager. He earned his Masters degree in Biology from UNM in 2003 and is currently a Ph.D. candidate in Zoology with a Minor in Museum Science at TTU. He initially was hired as part-time collection manager but assumed the full time position in November when Bill Gannon moved to full time Director of Research Ethics and Compliance Services.

D. Completion of The Undergraduate Mentorships in Environmental Biology (UMEB) Program (With RAMHSS supplement) Grant DBI-0102773 (9/01-8/06). This grant provided a substantial amount of support to the DOM in terms of student education and employment; it was conducted in collaboration with the Sevilleta Long Term Ecological Research Program (LTER). The goals of the UMEB program were: (1) instruct undergraduates in the principles of scientific research, (2) expose students to ecological research techniques and career opportunities, (3) facilitate individual student research projects, and (4) encourage students to continue scientific education in upper-division courses and graduate school. To accomplish these goals, the program included (1) orientation meetings devoted to ecological research at the Sevilleta and MSB, (2) faculty-student one-on-one instruction of hypothesis development and research protocols, (3) field and laboratory experiences in sampling and data collection, (4) implementation of student research projects, carried out under the guidance of student-selected faculty, (5) a UMEB Symposium for project presentations, (6) attendance at scientific meetings, and (7) preparation and submission of project manuscripts for Senior Honors Theses and, when appropriate, scientific journals. These activities integrated all theoretical and technical aspects of the LTER and MSB, and promoted a holistic approach to large-scale ecological studies.

A total of 56 students participated. To date, 45 received their B.S. degrees (80%). This group consisted of 11 Native Americans (19%) – 7 graduated to date, 15 Anglos (27%) – 11 graduated, 31 Hispanics (55%) – 26 graduated, and 2 African American (3.6%). Overall, we expect that 48 of these 56 participants (88%) will earn a B.S. degree, a much higher percentage than their non-program peers at UNM (graduation rate 46%).

E. Public Outreach

The staff of the DOM continued to participate in a variety of public service activities by providing teaching material, speaking to classes on a wide range of biological topics, giving tours to school or special interest groups, providing answers to public inquiries via phone or email, serving as judges at science fairs, and generally serving as a resource for any who request our assistance.

2. COLLECTION USE

Collection Growth (specimens catalogued)	Loans (outgoing)	Loans (incoming)	Visitors	Information Requests Personally Responded to	Publications Citing MSB Specimens
4641	22 (406 specimens)	na	72	>100	>25

When loans of mammalian tissue are included with traditional voucher specimens, 76 outgoing loans of 5269 specimens were made in 2006.

3. COURSES USING THE COLLECTIONS

Non-UNM Courses

Biology class, Newcomb High School
Wildlife Biology Class, Bosque School
Wildfriends Program, UNM Law School

UNM Courses

BIOL. 112L Biology for Non Majors
BIOL. 203L Ecology and Evolution
BIOL. 204L Plant and Animal Form and Function
BIOL. 489 Mammalogy
BIOL. 482/582L Parasitology
BIOL. 402/502 Advanced Field Mammalogy
BIOL. 386 General Vertebrate Zoology
BIOL. 599, Thesis: Spring, Fall and Summer semesters
BIOL. 699, Dissertation: Spring, Fall and Summer semesters
ART HIST 407 Museum Studies

4. COURSES TAUGHT BY MSB PERSONNEL

A. Faculty/Collection Managers

Cook, J. A.

BIOL. 203, Evolution and Ecology, 2 sections, 105 students
BIOL. 402/502, Coalescence and Phylogeography, 6 students
BIOL. 489, Mammalogy, 16 students
BIOL. 402/502, Advanced Field Methods in Mammalogy, 3 students
BIOL. 599, Thesis: Winter, Spring and Summer semesters, 2 students
BIOL. 699, Dissertation, Winter, Spring and Summer semesters, 1 student

Duszynski, D.W.

BIOL. 461L, Tropical Biology, Spring, 15 students

Gannon, W. L.

BIOMED. 555, Research BioEthics, Fall, 16 students
BIOL. 402/502, Spring, 4 students; Fall, 3 students

B. Graduate Students (labs, etc.)

BIOL. 489L, Mammalogy Lab
BIOL. 386L, General Vertebrate Zoology Lab

5. COLLECTION MANAGEMENT

The DOM processed 74 accessions (approximately 5,000 specimens, not including the 33,000 specimens from the UIMNH collection which have not yet been formally accessioned.) in 2006.

The majority of specimens received were from the UIMNH collection, the Rausch Private Collection, the Beringian Coevolution Project (consisting mainly of carnivore, soricomorph, lagomorph, and rodent material from Alaska, Canada and Siberia) and material transferred from Cook's former research program Idaho State (IF skeletal and tissue material). The DOM continues its collaboration with state and federal agencies (e.g., serving as repository for both mountain lion (19) taken by the NMGF, and Mexican wolves (12) from the federal reintroduction program). This rate of growth is higher than nearly all of our peer institutions (e.g., Smithsonian, UC Berkeley).

A large portion of staff time involved processing the above accessions as well as entry of thousands of pages of IF and BCP data. Most of that effort was funded by extramural grants.

Additionally, a substantial effort was devoted to Integrated Pest Management and curatorial efforts of the UIMNH collection which was heavily infested with cigarette beetles and had suffered significant damage. The collection (consisting of 53 museum cases) is now in place in the museum and awaits cataloging and eventual integration into the main collection. A grant to assist in the costs of incorporation was submitted to the NSF Biological Research Collections program and received reviews of "Outstanding" with recommendations for funding, however, funding was not received. This grant will be resubmitted in the next cycle (in July 2007).

The museum will be hosting the 87th American Society of Mammalogists Annual Meeting in June 2007. We have taken this opportunity to apply for reaccreditation by the ASM Systematic Collections Committee. Thus, we began initial preparations for the ASM visit of the collection in Fall 2006.

6. AWARDS, GRANTS, AND CONTRACTS

J.A. Cook

\$15,000. NSF, REU-II Supplement for BCP. (F&A, \$2,500).

\$40,000. US Fish and Wildlife Service, Juneau. Molecular Genetics of Endemics. (F&A, 13,300).

\$10,000. USDA Forest Service, Tongass National Forest Inventory and Monitoring of Small Mammals. (F&A, \$3,300).

\$800,000. NIH 2 U19 AI045452-06 (G Mertz, PI; Cook, co-PI), 8/31/05-4/30/10 ICIDR, Hantavirus Ecology and Disease in Chile and Panama (2nd year). (F&A, \$280,000—to north campus).

\$126,400. NIH- 2 D43 TW001133-06A1 (G Mertz, PI; Cook, Co-PI), 07/01/1999-03/31/2011 Fogarty International Training Grant Project Title: Training in Hantavirus Ecology, Virology & Clinical Investigation in the Americas (1st year). (F&A, \$42,000—to north campus).

\$145,000 (\$502,000 total). NSF0415668 01/01/06 to 12/31/06 Beringian coevolution project—year II (F&A, \$45,000)

D.W. Duszynski

\$3,000. UNM/VPR Office. Seed money for startup of the MSB Publication Series. D.W. Duszynski PI. (F&A, \$0).

\$3,000. UNM/Facilities Planning. New ceiling lighting in the dry collection of the mammal and bird divisions of MSB. D.W. Duszynski, PI. (F&A, \$0).

\$9,500. UNM/Facilities Planning. Installation of new dome fan (ER-3) on the roof to exhaust the hood above the kettle in dirty prep lab (room 237) to draw and circulate air properly and be certified by SHEA. D.W. Duszynski, PI. (F&A, \$0).

\$1,500. Working with Ralph Alires (Area 4) corrected ducting in 5 laboratories (varied from 8.5" to 6" to 5.5" to 4") to a uniform size (4") so that MOVEX point-exhaust arms can be properly installed. (F&A, \$0).

\$200,000. Working with Joe Brawley secured funding from UNM to purchase, fix, repair, correct, complete the majority of health and safety issues identified to the administration in my 25 October, 2005 memo. (F&A, \$0).

W.L. Gannon

\$235,000. National Fish and Wildlife Foundation. Impacts of abandoned mine reclamation on population dynamics and the molecular landscape of Townsend's big-eared bat (*Corynorhinus townsendii*). Year III. (Co-PI with R.E. Sherwin) 12/05-12/2006. (F&A, \$0).

\$50,000 (\$400,000 total) UMEB: Undergraduate Career Enhancement and Training in Ecological Studies in New Mexico. NSF. 8/01-7/07. (co-PI, Robert R. Parmenter). (F&A, \$16,500).

\$7,000 UMEB supplement- RAMHSS: Undergraduate Career Enhancement and Training in Ecological Studies in New Mexico. NSF. 8/06-7/07. (co-PI, Robert R. Parmenter). (F&A, \$0).

\$5,000. Improved housing of wolf (*Canis lupus baileyi*) specimens and its conservation in New Mexico. U. S. Fish and Wildlife Service. (F&A, \$0).

7. PUBLICATIONS**A. Books, Book Chapters, Edited Volumes**

None.

B. Journal Articles

Abramson, G., L. Giuggioli, V.M. Kenkre, **J.W. Dragoo**, R.R. Parmenter, C.A. Parmenter and **T.L. Yates**. 2006. Diffusion and home range parameters for rodents: *Peromyscus maniculatus* in New Mexico. Ecological Complexity 3:64-70.

- Asmundsson, I.A., **D.W. Duszynski**, J.A. Campbell. 2006. Seven new *Eimeria* species (Apicomplexa: Eimeriidae) from colubrid snakes of Guatemala and a discussion of what to call ellipsoid tetrasporocystic dizoic coccidia of reptiles. *Systematic Parasitology* 63:1-13.
- Cook, J. A., N. G. Dawson**, and **S. O. MacDonald**. 2006. Conservation of highly fragmented systems: the north temperate Alexander Archipelago. *Biological Conservation*. 133:1-15.
- Dragoo, J., A. Lackey**, K. Moore, E. Lessa, **J. Cook**, and **T. Yates**. 2006. Phylogeography of the deer mouse (*Peromyscus maniculatus*) provides a predictive framework for research on hantaviruses. *Journal of General Virology*. 87:1997-2003.
- Dunnum, J. L.**, J. Salazar-Bravo. 2006. Karyotypes of some members of the genus *Cavia* (Rodentia: Caviidae) from Bolivia. *Journal of Mammalian Biology - Zeitschrift fur Saugetierkunde* 71:366-370.
- Francés J. y G. D'Elía**. 2006. *Oligoryzomys delticola* es sinónimo de *O. nigripes* (Rodentia, Cricetidae, Sigmodontinae). *Mastozoologia Neotropical On-Line* 13:(no page numbers).
- Frey, J. K. and J. L. Malaney**. 2006. Snowshoe hare (*Lepus americanus*) and mountain cottontail (*Sylvilagus nuttallii*) biogeography at their southern range limit. *Journal of Mammalogy* 87:1175-1182.
- Giuggioli, L., G. Abramson, V. M. Kenkre, R. R. Parmenter, and **T. L. Yates**. 2006. Theory of home range estimation from displacement measurements of animal populations. *Journal of Theoretical Biology* 240:126-135.
- Gannon, W. L.** 2006. Beeps in the night; long-term monitoring of bats at the Rio Grande Nature Center. *Bosque Tracks*, Fall: 12 – 14.
- Gannon, W. L.** 2006. Book review of, Gannon, M. R., A. Kurta, A. Rodriguez-Duran, and M. R. Willig. 2005. *Bats of Puerto Rico: An island focus and a Caribbean perspective*. Texas Tech Press, Lubbock, TX, USA. 239 pages. *Journal of Mammalogy* 87: 635
- Gannon, W. L. and G. R. Rácz**. 2006. Character displacement and ecomorphological analysis of two long-eared *Myotis* (*M. auricolus* and *M. evotis*). *Journal of Mammalogy* 87:171-179.
- Glass, G. E., T.M. Shields, R.R. Parmenter, D. Goade, J.N. Mills, J. Cheek, **J. Cook**, and **T.L. Yates**. 2006. Hantavirus risk in 2006 for U. S. Southwest. *Occasional Papers*, Texas Tech University. 255:1-16.
- Goethert, H.K., **J.A. Cook**, E.W. Lance, and S.R. Telford III. 2006. Fay and Rausch 1969 Revisited: *Babesia microti* in Alaskan small mammals. *Journal of Parasitology*. 92:826-831.
- Hass, C.C. and **J.W. Dragoo**. 2006. Rabies in hooded and striped skunks in Arizona. *Journal of Wildlife Diseases* 42:825-829.

Holmgren, M., P. Stapp, C.R. Dickman, C. Gracia, S. Graham, J.R. Gutierrez, **C. Hice**, F. Jaksic, D.A. Kelt, M. Letnic, M. Lima, B.C. Lopez, P.L. Meserve, W.B. Milstead, G.A. Polis, M.A. Previtali, M. Richter, S. Sabate, and F.A. Squeo. 2006. Extreme climatic events shape arid and semiarid ecosystems. *Frontiers in Ecology and the Environment* 4:87-95.

Malaney, J.L. and **J.K. Frey**. 2006. Summer habitat use by snowshoe hare and mountain cottontail at their southern zone of sympatry. *Journal of Wildlife Management* 70:877-883.

Ramotnik, C.A. 2006. Handling and care of dry bird and mammal specimens. Conserve O Gram Number 11/9. U.S. National Park Service, Park Museum Management Program, Washington, DC. 5 pp.

Salazar-Bravo, J., C.J. Phillips, R.D. Bradley, R.J. Baker, **T.L. Yates**, and **L.A. Ruedas**. 2006. Voucher specimens for SARS-linked bats. *Science* 311:1099-1100.

Suzan, G., J.T. Giermakowski, E. Marce, H. Suzan-Azpiri, B. Armien, and **T.L. Yates**. 2006. Modeling hantavirus reservoir species dominance in high seroprevalence areas on the Azuero Peninsula of Panama. *American Journal of Tropical Medicine and Hygiene* 74:1103-1110.

C. Web-Based

Frey, J.K., **S.O. MacDonald**, and **J.A. Cook**. 2006. Checklist to the Mammals of New Mexico. 4 pp (online <http://www.msb.unm.edu/mammals/publications/NMmamchecklist.PDF>)

D. Technical Reports

None.

E. Theses/Dissertations Completed

Anson Koehler, completed Master's of Science degree. December 2006. "Systematics, phylogeography, distribution, and lifecycle of *Soboliphyme baturini*." Master's Thesis, University of New Mexico, Albuquerque, New Mexico. 90 p.

F. Work In Progress (Only in press and already submitted)

Ubelaker, J.E., R. Easter-Taylor, A. Marshall, D.W. Duszynski. 2007. A new species of *Subulura* (Nematoda, Subuluroidea) from ground squirrels, *Spermophilus spilosoma* bennett, 1833, in New Mexico. *Journal of Parasitology*, *In press* (mid-2007).

Duszynski, D.W., A.J. Lynch, J.A. Cook. 2007. Coccidia (Apicomplexa: Eimeriidae) infecting Cricetid rodents from Alaska, U.S.A., and Northeastern Siberia, Russia, and description of a new *Eimeria* species from *Myodes rutilus*, the northern red-backed vole. *Comparative Parasitology* 74: *In press* (July, 2007 issue).

Gannon, W.L. and R.S. Sikes. 2007. Guidelines for the use of wild mammals in research as approved by the American Society of Mammalogists. *In Press*. Journal of Mammalogy 88: *In press*.

Gannon, W.L. 2007. Book review of, Thorington, R.W., Jr., and F.E. Ferrell. 2006. Squirrels” The animal answer guide. John Hopkins University Press, Baltimore, Maryland, 208 pp. Journal of Mammalogy 88: *In press*.

Hope, A. G, and R. R. Parmenter. Food Habits of Rodents Inhabiting Arid and Semi-arid Ecosystems of Central New Mexico. Special Publications: Museum of Southwestern Biology. *In press*.

Koehler, A. V., Hoberg, E. P., Dokuchaev, N. E. and J. A. Cook. Geographic and host range of the nematode *Soboliphyme baturini* across Beringia. Journal of Parasitology. (Accepted).

Koehler A.V.A., Hoberg E.P., Torres-Perez F. & Cook J.A. A molecular view of the superfamily Dioctophymatoidea (Nematoda). Journal of Parasitology

Lynch, A.J., D.W. Duszynski, J.A. Cook. 2007. Species of Coccidia (Apicomplexa: Eimeriidae) infecting pikas from Alaska, U.S.A. and northeastern Siberia, Russia. Submitted to Journal of Parasitology, *In press*.

Vasquez M., Torres-Perez F. & Lamborot M. Genetic variation within and between four chromosomal races of *Liolaemus monticola* (Tropiduridae) in Chile. Herpetological Journal (accepted).

G. Publications/Reports Based on MSB Specimens/Data by Outside Researchers

An exact number of current publications or reports utilizing MSB DOM specimens is not available. However, we are developing a more accurate method of following this important statistic and should be able to have accurate usage numbers from this point on.

8. ACTIVITIES IN LEARNED SOCIETIES

A. Invited/Plenary Talks and/or Seminars

J.A. Cook

Host-Parasite Diversification Around the North Pacific Rim. University of Wyoming, Laramie, Dec.

A Macroevolutionary Mosaic: Episodic Processes and History of Northern Faunas. E. Hoberg, Cook, J. International Workshop on Arctic Parasitology, Calgary, November.

Diversification across the High Latitude Nexus between Asia and North America. Univ. of Kansas, Lawrence, KS, May.

High Latitude Views of Biotic Interchange among Continents. UNM Biology Dept Ecology Brown Bag. September.

W.L. Gannon

Gannon, W. L. Defining the Molecular Landscape of Townsend's Big-eared bat (*Corynorhinus townsendii*) from central Nevada: Spatial and Temporal Delineation of Populations. Invited talk to Rice University, March.

Duszynski, D.W.

Tropical Biology: A small contribution to "UNM Goes Global." Invited speaker, UNM's International Task Force, Albuquerque, NM. April.

B. Contributed Talks/Posters

Cook, J., E. Hoberg, H. Henttonen, A. Koehler, S. MacDonald, J. Laakkonen, J. Malaney, D. Goade 2006. Model Archives: From Baselines to Research, Surveillance, Communication and Management. International Workshop on Arctic Parasitology, Calgary, November.

Cook, J.A. 2006. High Latitude Views of Biotic Interchange among Continents. UNM Biology Dept Ecology Brown Bag. September.

Runck, A., M. Matocq, and J.A. Cook. 2006. When is a barrier only a filter? Assessment of a contact zone in red-backed voles. American Society of Mammalogists annual meeting, Amherst, MA. June.

Dimas, M.V., T.J. Orr, B.O. Wolf, and W.L. Gannon. Is nitrogen enriched between parasites and host? *Neotoma albigula* and Bot Flies (*Cuterebra sp.*): An empirical test of nitrogen enrichment in food webs. Ecological Society of America, Memphis, TN August.

Dunnum, J.L. and J. Salazar-Bravo. Molecular Systematics of the *Galea musteloides* group: Inferences from Cytochrome b Sequence Data. American Society of Mammalogists meeting, June.

Harding, L.E. 2006. Phylogeography of the long-tailed weasel, *Mustela frenata*. 86th Annual meeting of the American Society of Mammalogists (ASM), Amherst, Mass. 17-21 June.

Goade, D., R. Nofchissey, C.A. Hope, A. Tsvetkova, and J.A. Cook. Serologic evidence for hantaviruses in small mammals of the Beringia. Tropical Medicine Meeting, Atlanta, November.

Hawkins, M., C.J. McClarin, W.L. Gannon, G.R. Racz and T.J. Orr. Correlations between bat activity and climate in the Rio Grande Bosque, New Mexico. Ecological Society of America, Memphis, TN August.

E.M. Jackson, W.L. Gannon, and G.R. Racz. Is sound space saturated? Ecological Society of America, Memphis, TN August.

R.A. Sampson, C.J. McClarin, and W.L. Gannon. A spatial and temporal analysis of bat rabies testing and infection. Ecological Society of America, Memphis, TN August.

Koehler, A.V., Phylogeography of a holarctic nematode, *Soboliphyme baturini* in *Martes* spp (Mustelidae). Third International Workshop for Arctic Parasitology, Calgary, Canada. November.

Hope, A.G., and R.R. Parmenter. Food Habits of Rodents Inhabiting Arid and Semi-arid Ecosystems of Central New Mexico. LTER Annual All Scientists Meeting, Estes Park, CO.

Runck, A., M. Matocq, and J.A. Cook. When is a barrier only a filter? Assessment of a contact zone in red-backed voles. American Society of Mammalogists annual meeting, Amherst, MA. June.

C. Attendance at Professional Meetings

Cook, J.A.

American Society of Mammalogists, University of Massachusetts, June 2006.
Third International Workshop for Arctic Parasitology, Calgary, Canada. November.

Dimas M.V.

Ecological Society of America, Memphis, TN August.

Dunnum, J.

American Society of Mammalogists, University of Massachusetts, June.
Texas Society of Mammalogists, Junction, TX, February.

Duszynski, D.W.

Annual Meeting, Southwestern Association of Parasitologists, Lake Texoma, OK, April.
International Congress of Parasitology-XI, Glasgow, Scotland, August.

Gannon, W.L.

Ecological Society of America, Memphis, TN August.

Harding, L.E.

American Society of Mammalogists, Amherst, Mass., June.

Hope, A.G.

LTER Annual All Scientists Meeting, Estes Park, CO.

Hawkins, M.

Ecological Society of America, Memphis, TN August.

Jackson, E.M.

Ecological Society of America, Memphis, TN August.

Koehler, A.V.

Third International Workshop for Arctic Parasitology, Calgary, Canada. November.

Malaney, J.

American Society of Mammalogists, University of Massachusetts, June.

Third International Workshop for Arctic Parasitology, Calgary, Canada. November.

McClarín, C.J.

Ecological Society of America, Memphis, TN August.

Orr, T.J.

Ecological Society of America, Memphis, TN August.

Racz, G. R.

Ecological Society of America, Memphis, TN August.

Sampson, R.A.

Ecological Society of America, Memphis, TN August.

D. Service as Editor or on Editorial Board of a Journal

Gannon, W.L.

Associate Editor, Book Reviews, *Journal of Mammalogy* (2005-present)

E. Service as Officer of Professional Society/Organization

Cook, J.A.

Panel Reviewer, National Science Foundation, Spring.

Duszynski, D.W.

Scientific Program Officer of the American Society of Parasitology (ASP, 19th year); 2006 worked with the British Society of Parasitology to plan the 11th International Congress of Parasitology, Glasgow, Scotland, 4-10 August, 2006. Have been working with colleagues in Merida and Mexico City planning the first ever meeting between the ASP, Canadian and Mexican Parasitologists to be held 21-25 June, 2007.

9. OTHER PROFESSIONAL ACTIVITIES

A. Presentations to General Audience in a Scholarly Capacity

Duszynski, D. W.

CSU, Serendipity and the Conceptual Basis for Classification of the Coccidia. Department of Biology, Colorado State University, Ft. Collins CO, December.

B. Presentations in a Scholarly Capacity at Hearings, Workshops, Legislative Committees, etc.

Cook, J.A.

Presenter, Endemic Panel for the Tongass Conservation Strategy Review, Tongass Forest Plan, USDA Forest Service, Ketchikan, March.

Duszynski, D. W.

One of 25 international scientists, invited to serve on a Sloan Foundation workshop, "To Resolve Microorganism Taxonomic and Cultural Collection Problems Arising from the New Barcoding Initiatives." November 6-7, Portland, Maine.

C. Scholarly Service as a Member of a Local/State/Regional/National Committee, Panel, etc.

Cook, J.A.

Chair, UNM Graduate Student Selection Committee, 2006-2007

Co-Chair, UNM Ad hoc Vehicle Policy Committee, 2006-2007

Co-Chair, Local Organizing Committee, American Society of Mammalogists 87th Meeting. Albuquerque, NM

Dunnum, J.L.

Co-Chair, Local Organizing Committee, American Society of Mammalogists 87th Meeting. Albuquerque, NM

Gannon, W.L.

Co-Chair, Local Organizing Committee, American Society of Mammalogists 87th Meeting. Albuquerque, NM

D. Journal and Proposal Referee

Cook, J.A.

Molecular Ecology (4), Evolution (1), Molecular Phylogenetics and Evolution (1), Journal of Mammalogy (1)

National Science Foundation, BS&I, 1 review, Systematic Biology 1, review, Population Biology 2 reviews.

Civilian Research and Development Foundation, 1 review, CONICYT/FONDECYT- Chile; 1 proposal review

Duszynski, D.W.

Journal of Parasitology (1), Acta Parasitologica (2)

Dunnum, J.L.

Journal of Mammalogy (1)

Gannon, W.L.

Journal of Mammalogy, Acta Chiroptera, Ecology, Southwestern Naturalist, Journal of Biogeography

Hope, A. G.

Journal of Biogeography (1)

E. Hosting Professional Colleagues and Groups

72 guests logged in to the DOM guest book. Of those, 31 were visiting academics and professionals from 22 outside institutions (see following list); 22 were high school students working on research projects; remaining were researchers from other UNM departments or visitors during the CERIA grand opening.

Amy Raes, Southern Methodist University.

Thomas Lloyd, Eastern New Mexico University.

Robert Baker, Texas Tech University.

Denis Budylo, Anatoly Demidenko, Alexander Pezednov, Olga Garrilora; various Russian Academic Institutions.

Mary Woodson, Cornell University.

Keith Geluso, University of Nebraska

Clyde Jones, Natural History Association and Texas Tech University.

W. Forehand, L. Hill, K. Stone, G. Bur, J. Radler; NM Museum of Natural History

Jack Miller, University of Western Ontario.

B. Jacobsen, S. Brunner, G. Jarrell, D. McDonald; University of Alaska Museum.

Emily Doule, Swedish Museum of Natural History.

Purba Pal, Sam Noble Museum of Natural History.

Kristen Laise, Washington DC Heritage Preservation.

Logan Ivy, Denver Museum of Natural History.

Ahn Molenix, University of Texas.

Chris Conroy, Museum of Vertebrate Zoology, Berkley.

Paula Hildebrandt, Mississippi State University.

Brett Riddle, University of Nevada Las Vegas.

Alfredo Montoya, New Mexico State University

Ben Barnes, Lone Mountain Archeology.

James Stuart, NM Game and Fish.

Cook, J.A.

Hosted Dr. Eric Hoberg, USDA National Parasite Collection Beltsville, (1 week in June).

Hosted, Drs. Heikki Henttonen and Juha Laakkonen, Vantaa Research Station, Finland (1 week in June)

Hosted Dr. Enrique Lessa, Professor of Evolution, Universidad de la Republica, Montevideo, Uruguay (3 weeks in March)

10. SERVICE

A. Symposia, Workshops, Conferences, etc. Sponsored, Organized, Held, etc.

Cook, J.A.

Session Chair of symposium, Moving Forward. International Workshop on Arctic Parasitology, Calgary, November.

Coordinator, Endemic Panel for the Tongass Conservation Strategy Review, Tongass Forest Plan, USDA Forest Service, Ketchikan, March 2006

B. Public Service

General

Over 100 occasions were documented assisting the public either as drop-ins to the collection, phone calls, or emails. This is an important and ongoing activity occupies all divisional staff.

Cook, J. A.

Faculty Sponsor, Student Chapter of the New Mexico Wilderness Alliance

Duszynski, D.W.

Shepherded construction of fluid storage sheds, including correcting dozens of construction, administrative and paperwork errors, through to completion, inspection, and transfer to MSB (05/11/06).

Planned, consulted, set up committee structure, and designed infrastructure for the CERIA Building Dedication/Open House, on October 8, 2006. This included meeting and working with MSB personnel in all divisions and with Susan Dever in Media Arts, Ed Angle in Art Technology, Bob Waide in the LTER Network Office, Scott Collins in the Sevilleta LTER Office, Terry Yates in the VPR Office, Jane Slaughter in A&S, Sachi Isobe and Debbie Dobson in A&S/Development, and others.

Completed removal, once and forever, of the acid dilution tank from the basement of CERIA.

Worked/working with Mark Manzutto, Manager Remodel UNM-PPD, on schematics of ductwork in CERIA, put together plan/cost analysis to: 1) re-duct the 5 labs with both Movex arms and room air exchangers on the same duct; 2) replace 2 roof fans to accommodate new ducting; 3) fix the airflow in the genomics lab; and 4) get better air circulation for both heating and cooling in room 204 and the associated suite of Curators offices. All work is funded and to begin March, 2007.

Gannon, W.L.

Board Member, Rio Grande Nature Center State Park Advisory Board, Appointed 1995.

Science Fair Judge - Regional Fair 2006 March 17

Science Fair Judge - Jefferson Middle School - February 2006

PTA Secretary, Montezuma Elementary School, appointed June 2006

Harding, L.E.

Lectured on vertebrates to the Biology classes at Rio Rancho High once per semester.

Polechla, P.

Brought in high school student groups (Bosque School and Newcomb HS) to learn museum preparation techniques.

11. ADVANCED STUDY, HONORS, AWARDS, FELLOWSHIPS, ETC.**D.W. Duszynski.**

Elected as Council Member-At-Large for American Society of Parasitologists; term from 08/06-07/10.

Selected as the First Distinguished Alumnus for the Department of Biology, Colorado State University, Ft. Collins CO (December)

Gannon, W.L.

20 years of service - UNM

12. DONATIONS AND GIFTS RECEIVED

Large collection of mammalian voucher specimens donated by Robert and Virginia Rausch.

141 mammalian voucher specimens donated by Dr. Troy Best, Department of Zoology and Wildlife, Auburn University.

13. CURRENT STAFF**A. Faculty/Staff**

J.A. Cook, Curator

W.L. Gannon, Collection Manager

J.L. Dunnum, Collection Manager

C.A. Ramotnik, USGS Collection Manager

M.A. Bogan, Emeritus Curator

J.S. Findley, Emeritus Curator

Fernando Torres, Post-Doctoral Associate

B. Graduate students

Brittany Barker, Ph.D. student. Co-advised with R. Waide. Brittany is investigating genetic differentiation among forest and grassland vertebrates in Puerto Rico and surrounding islands of the Caribbean.

Dolly Crawford, Ph.D. student. Dolly investigated molecular analysis of *Microtus mexicanus*: a test of the genetic distinctiveness of *M. mogollonensis*. This project, assisted by undergraduate Andrea Chavez, uses a loan of approximately 200 Mexican vole tissues from the Division of

Genomic Resources at MSB. No longer working in the DOM, she now works in Felisa Smith's lab.

Natalie Dawson, Ph.D. student. Endemism, conservation genetics, and insular biogeography of 3 carnivores of the Tongass National Forest. Has worked hard at training UMEB and REU students thoroughly in advanced lab techniques such as DNA amplification and isotopes.

Jose Frances, M. S. student. Jose is investigating the conservation genetics of two isolated populations of wolverines.

Larisa Harding, Ph. D. Candidate. Speciation and Biodiversity: Phylogeography and historical biogeography of *Mustela frenata*; Phylogeny of the American Mustelidae, with emphasis on two South American endemics.

Andrew Hope, Ph.D. student. Comparative Phylogeography of the *Sorex cinereus* Complex. Aside from his role in the graduate program Andrew has worked in 3 divisions in 2006 including Mammals, Genomic Resources and the Herbarium. He has also been very effective in training undergraduate students in ARCTOS applications, specimen preparation, and curatorial techniques.

Anson Koehler, completed Master's of Science degree in December 2006. The thesis was entitled Systematics, phylogeography, distribution, and lifecycle of *Soboliphyme baturini*. He is now employed by the US Geologic Survey in Madison Wisconsin and is studying the molecular genetics of avian influenza.

Jason Malaney, Ph.D. student. Snowshoe hare historical biogeography and plant herbivore coevolution. Provided extensive training of students in museum techniques, field specimen preparation and ARCTOS operations.

Jason Andrew Thomas, Ph.D. student. Implications of population changes in (*Peromyscus maniculatus*) deer mice on the emergence of virulent strains of Hantavirus.

C. Undergraduate Student Workers and Volunteers

Our undergraduate students represent a diverse cross-section of the UNM student body. We are proud of this diversity and feel that among other things our students are gaining with regard to work experience, our work environment has helped foster cultural awareness and tolerance in the sciences. The DOM provides a much-needed support network within the larger UNM community. We emphasize classwork and graduation as our first priority. Several of the undergraduate workers that were employed over the past couple years, graduated in December 2006. Some are going on to professional careers or graduate school. One is now employed in the BioTech industry (Genetech) in Santa Fe. Their time in the DOM provided a wealth of integrated experiences that cut across lab, museum, and field based research activities. Several also gained communication experience and skills through professional presentations at conferences. These experiences assisted in them in finding post-graduate employment or educational opportunities. Of the 22 Undergraduates working in the collections, 15 responded with their accomplishments:

Andrea Chavez: Complete data entry of approximately 2000 specimens of *Microtus oeconomus*, donated by collector Robert Rausch. She entered voucher specimens collected and prepared by Mammalogy Class Fall 2005 into MSB collection. She expects to complete her BS degree in 2007 and go on to graduate school in Biology.

Margo Dimas: Over her several years working in the collection became an extremely valuable staff member and gained extensive experience in museum and mammal research. Completed research projects on pika at the Valles Caldera and bot flies on *Neotoma*. Has graduated from UNM and now has a position with the NMGF.

Ben Ediger: Worked in both the Mammal Division and the Division of Genomic Resources, primarily organizing mammalian frozen tissues and entering IF and BCP data. Participated in field research in Alaska and Canada on the BCP.

Melvin Foster: A returning student, he is working in the DOM for the second time. Specialized primarily in the preparation and curation of large carnivores. Melvin is now applying to medical school.

Melissa Hawkins: Completed one year of acoustical research using an Anabat system on insectivorous bats in the Central Rio Grande Bosque and began a project with the Los Alamos National Laboratory dissecting and analyzing owl pellets from the Mexican Spotted Owl.

Emily Hodson: Worked to complete integration of the USGS collections and Division of Mammals bat collections, increased the level of organization of the collection, organized divisional library, processed a large amount of specimens in the preparation lab, and integrated them into the collection, moved the remainder of equipment and supplies from Castetter building into CERIA. She is currently employed on an NIH grant with Dr. Parmenter.

Erin Jackson: Erin has been a long-term staff member and was relied upon for all aspects of collection management and monitoring bat acoustic station at the Rio Grande Nature Center. She has now graduated.

Camille McClarin: Was a mainstay in the Division and responsible for the vast majority of data entry of NK and IF pages for the many incoming MSB projects. Contributed to several research projects conducting statistical analysis. She graduated in December 2006 and moved to southern California.

Randle McCain: Continued research on the biogeography of parasites via leporid hosts begun in 2005. Has worked in the collection doing specimen prep and museum curation and participated in field expeditions. He is still enrolled at UNM.

Lena Moffit: Worked on a phylogeographic analysis of *Zapus princeps*, the Western Jumping mouse testing the hypothesis that three distinct species exist within the historical, single clade of *Zapus princeps* via genetic analysis of geographically diverse specimens. She is currently in an interdisciplinary graduate program in environmental studies at UC Santa Barbara.

Krista Ortega: As a laboratory technician in the Cook lab she conducted DNA extractions, PCR amplification, and sequencing procedures and maintained research lab results and specimen inventories. Has finished her work in the DOM, just got married and is seeking employment as a crime lab technician.

Rachel Sampson: She was an Anthropology major, but changed to Biology and graduated with honors the spring semester of 2006. Aside from curatorial duties she is working on research on bat rabies (patterns of infection and testing) in New Mexico and hopes to work for the State Epidemiology labs next year.

Benjamin Schaff: Has worked in the DOM since 2005. Has participated in field research in Alaska and Canada on the BCP. His museum experience has included a mixture of specimen preparation, data entry and museum curation. He also assisted the TA's on the 2006 Mammalogy field trips and is still enrolled at UNM.

Teri Orr entered a master's program with Blair Wolf and has since moved into a doctoral program at UC Riverside.

Kristin Moore worked with us for 3 years, finished her BS degree, and is now in Medical School at UNM.

Other Undergraduates working in the Division of Mammals include:

Kendra Anderson
Nick Boyden
Stephanie Cummins
Daniel Larson
Russell Milazzo
Joseph O'Connell
Teresa Sanchez

High School Students/Volunteers

Max Maguire, Sandia Prep HS
Jonathan Tallent -El Dorado HS

14. MUSEUM ASSOCIATES

A. Curatorial Associates

James H. Brown, UNM Department of Biology
Jerry W. Dragoo, UNM Department of Biology
Donald W. Duszynski, UNM Department of Biology
Gabor R. Racz, UNM Department of Biology

B. Research Associates

J. Scott Altenbach, UNM Department of Biology
Sydney Anderson, American Museum of Natural History, New York
Robert J. Baker, The Museum, Texas Tech University, Lubbock, TX
Troy L. Best, Department of Biology, Auburn University
M. Scott Burt, Kirksville, Missouri
Fernando Cervantes, UNAM, Mexico City, Mexico
Paul J. Cryan, Ft. Collins, Colorado
John Demboski, Denver Museum of Science and Nature, Denver, Colorado
Eugene Fleharty, Oklahoma
Melissa Fleming, Poulsbo, Washington
Jennifer K. Frey, Las Curces, New Mexico
Scott L. Gardner, Dept. Nematology, Curator, University Nebraska
Keith Geluso, Albuquerque, New Mexico
Ken Geluso, Lincoln, Nebraska
Sarah B. George, Director, Utah State Museum
Gary L. Graham, Texas Parks and Recreation Division
David J. Hafner, New Mexico Museum Nat. History
Art Harris, University of Texas, El Paso, Texas
Bruce Hayward, Silver City, New Mexico
Heikki Henttonen, Finland
Edward J. Heske, Illinois Biological Survey
Erik Hoberg, Beltsville, Maryland
R. Dewitt Ivey, Retired. Active in Botany, mammals
Clyde Jones, The Museum Texas Tech University
Sue Kutz, Saskatoon, Saskatchewan
Enrique Lessa, Montevideo, Uruguay
Stephen MacDonald, Silver City, New Mexico
Michael Mares, Norman, Oklahoma
Pablo Marquet, Valdivia, Chile
Rodrigo Medillín, UNAM, Mexico City, Mexico
Tony R. Mollhagen, Lubbock, Texas
Gary Morgan, New Mexico Museum Natural History, New Mexico
Dwight W. Moore, Emporia State University
Michael J. O'Farrell, Jr., Las Vegas, Nevada
Thomas J. O'Shea, Ft. Collins, Colorado
Eduardo Palma, Valdivia, Chile
Robert Parmenter, Valles Caldera, Jemez, New Mexico
James L. Patton, Museum of Vertebrate Zoology, Berkeley, California
Paul J. Polechla, Albuquerque, New Mexico
Robert Rausch, University of Washington, Seattle
Brett R. Riddle, University of Nevada, Las Vegas, NV
Jorge Salazar Bravo, Texas Tech University, Texas
C. Greg Schmitt, Farmington, New Mexico
Richard E. Sherwin, Christopher Newport University, Virginia

Fred Szalay, Los Ranchos de la Rio Grande, New Mexico
Sandy Talbot, Molecular Ecology Lab- USGS Anchorage, Alaska
Ernie Valdez, Tijeras, New Mexico
Alasdair Veitch, Department of Renewable Resources, Norman Wells, NWT, Canada
Jack Whitman, Alaska Department of Fish and Game – Fairbanks, Alaska
Don E. Wilson, Smithsonian, Washington, DC

NATURAL HERITAGE NEW MEXICO

1. DIVISION HIGHLIGHTS

In 2006, Natural Heritage New Mexico was named the official data repository for several state projects, NMED Surface Water Quality Bureau Wetlands Database and data from species working groups on burrowing owls and endangered reptiles and amphibians. We developed a new GIS-based database for the Lincoln National Forest to monitor and manage endangered plant populations in the Sacramento Mountains. We are creating a managed areas database that will combine many disparate data into a single GIS layer to aid individuals and groups with ecosystem management and planning.

We are working with the New Mexico Forest and Watershed Restoration Institute (NMFWRI) at New Mexico Highlands University to support scientifically sound restoration of New Mexico's forests. Our ecologists have continued our long-standing involvement in restoration of the Middle Rio Grande with studies along the river corridor.

In 2006, the Natural Heritage New Mexico botanist maintained a public demonstration garden at the Rio Grande Botanic Garden, featuring the endangered Sacramento prickly poppy, and developed and delivered interpretive programs at the botanic garden about ongoing conservation projects. UNM grows the Holy Ghost Ipomopsis, an endangered plant, to restore and expand natural populations. We monitor vegetation and participate in educational outreach to school children through our participation in the Bosque Ecological Monitoring program. This study will expand for the fifth consecutive year, adding new opportunities to interact with students and learn about the Rio Grande and its bosque. The BEMP program's twenty-four sites span five counties, three pueblos, and all of our congressional districts.

We are collaborating with the Navajo Nation and the Hopi Tribe to survey over 1,700,000 acres for Gunnison's prairie dog colonies, supply GIS and remote-sensing technologies, and provide technical training to support tribal natural resource management. We conducted rare plant and animal surveys for the Navajo Nation and the Pueblo of Isleta.

We helped private ranchers acquire federal funding to support ranching activities that also conserve habitat for native plants and animals. We assisted landowners in grant writing and developing sustainable management practices for their lands, and we are monitoring the success of their management activities.

2. TABLE OF COLLECTION USE

Collection Growth (specimens catalogued)	Loans (outgoing)	Loans (incoming)	Visitors	Information Requests Personally Responded to	Publications Citing MSB Specimens
2,867 new records, 3,824 updated records	NA	NA	43,324 visitors to web site	89 personally, 49,085 publications downloaded	UNKNOWN

3. COURSES USING THE COLLECTIONS

None.

4. COURSES TAUGHT BY MSB PERSONNEL

A. Faculty/Collection Managers

Johnson, K.

ARSC 198, Experience the Natural World, Fall, 18 students

B. Staff

Neville, T.

Lab instructor. GEOG 483/583, Digital Image Processing, Fall, 15 students

5. COLLECTION MANAGEMENT

In 2006, Natural Heritage New Mexico updated our web site to make it easier to use and more professional. We added a publication search and download function so users can find and obtain digital copies of 182 publications. We continue to build cooperative data exchange relationships with New Mexico Department of Game and Fish, the US Fish and Wildlife Service, Bureau of Land Management, and US Forest Service. These data exchanges are adding valuable data on rare species to the Natural Heritage Information System. We have been chosen as the central data repository for all data on the endangered Jemez Mountain salamander, sand dune lizard, lesser prairie-chicken, gray vireo, and burrowing owl. We've databased the Rare Plant Technical Council web site to facilitate maintenance and searching capabilities and added updated features (i.e., photo index). We've also updated the New Mexico Ornithological Society web site and database and made it publically accessible. We continue to build the vegetation plot data bank that now contains 8,950 plot records from around the state, available to various agencies and individuals.

6. AWARDS, GRANTS, AND CONTRACTS

\$268,148. DOD. Banner #048417. Bird and invertebrate studies at Holloman Air Force Base. **Kristine Johnson**, PI. 05/01-04/06. \$30,785 (F&A, \$6,353).

\$58,800. DOD. Banner #048649. Vegetation map of Holloman Air Force Base. **Kristine Johnson**, PI. 09/03-04/06. \$43,580 (F&A, \$8,993).

\$68,564. DOD. Banner #048696. Chihuahuan Desert monitoring plan phase II. **Kristine Johnson**, PI. 04/06-03/07. \$61,640 (F&A, \$8,040).

\$50,000. DOD. Banner #048558. Interdependence of pinyon pines and pinyon jays. **Kristine Johnson**, PI. 01/05-05/07 \$19,486 (F&A \$4,021).

\$55,000. US FWS. Banner #048786. Habitat analysis for NM DoD species at risk. **Kristine Johnson**, PI. 11/06-12/07 \$0 (F&A \$0).

\$82,000. BLM. Banner #048845. Prairie dog survey & iNet database. **Kristine Johnson**, PI. 07/03-08/04. \$7,654 (F&A \$1,579).

\$76,040. Bureau of Reclamation. Banner #048710. Water requirements for SW willow flycatcher habitat and nesting at the Pueblo of Isleta. **Kristine Johnson**, PI. 05/06-04/08. \$32,614 (F&A \$6,546).

\$20,000. NMGF. Banner #048582. Black-tailed prairie dog remote sensing 2005. **Kristine Johnson**, PI. 05/05-03/06. \$11,575 (F&A \$1,954).

\$85,639. NMGF. Banner #048622. Database and GIS habitat analysis: lesser prairie chicken and sand dune lizard. **Kristine Johnson**, PI. 05/05-02/07. \$42,242 (F&A \$7,040).

\$10,000. Isleta Pueblo. Banner #048663. Endangered species at the Pueblo of Isleta. **Kristine Johnson**, PI. 05/05-12/05. \$5,893 (F&A \$1,216).

\$15,000. Pueblo of Isleta. Banner #048692. Water requirements for SW willow flycatcher at the Pueblo of Isleta. **Kristine Johnson**, PI. 04/06-05/07 \$14,999 (F&A \$3,095).

\$6,246. NM State Land Office. Banner #048683. Extend mapped area of LPCH habitat map in SE NM. **Kristine Johnson**, PI. 02/06-05/06 \$6,246 (F&A \$1,041).

\$10,000. NatureServe. Banner #048535. NatureServe FESTF. **Rayo McCollough**, PI. 08/04-09/06. \$3,534 (F&A \$1,080).

\$10,000. US Fish & Wildlife Service. Banner #048651. Spikedace data project. **Rayo McCollough**, PI. 09/05-12/05. \$2,739 (F&A \$565).

\$238,477. NPS. Banner #048459. Bandelier National Monument vegetation mapping project. **Esteban Muldavin**, PI. 09/02-09/07. \$22,790 (F&A \$2,793).

\$224,097. NPS. Banner #048546. Vegetation map for El Malpais National Monument. **Esteban Muldavin**, PI. 08/04-03/07. \$70,171 (F&A \$9,153).

\$323,547. NPS. Banner #048637. Guadalupe Mtns. National Park vegetation map and classification. **Esteban Muldavin**, PI. 07/05-06/08. \$24,782 (F&A \$3,232).

\$40,400. NPS. Banner #048628. Carlsbad Caverns National Park vegetation map accuracy assessment. **Esteban Muldavin**, PI. 07/05-04/08. \$27,029 (F&A \$3,526).

\$8,008. NPS. Banner #048646. Photo map and initiation of a vegetation map for Ft. Davis National Historic Site. **Esteban Muldavin**, PI. 09/05-12/07. \$1,794 (F&A \$234).

\$94,674. NPS. Banner #048697. Capulin Volcano NM & Pecos NHP vegetation mapping. **Esteban Muldavin**, PI. 04/06-12/08. \$11,618 (F&A \$1,515).

\$58,016. NPS. Banner #048598. Vegetation classification Pecos National Historic Park, Capulin Volcano Nat'l. Monument, NM & Ft. Union Nat'l. Monument. **Esteban Muldavin**, PI. 06/05-12/06. \$37,337 (F&A \$4,870).

\$12,757. NPS. Banner #048611. Aerial photography ortho-rectification modification. **Esteban Muldavin**, PI. 06/05-04/08. \$11,302 (F&A \$1,474).

\$10,000. NPS. Banner #048771. Vegetation map for the Southern Colorado Plateau Network: Salinas Pueblo Missions. **Esteban Muldavin**, PI. 08/03-12/07. \$1,637 (F&A \$213).

\$35,000. Army Corps of Engrs. Banner #048613. Vegetation sampling middle Rio Grande flood control project. **Esteban Muldavin**, PI. 07/05-09/07. \$51,212 (F&A \$11,818).

\$280,000. NM Army National Guard. Banner #048624. Biological resources management program. **Esteban Muldavin**, PI. 08/05-06/07. \$112,124 (F&A \$29,149).

\$280,000. NM Army National Guard. Banner #048892. Biological resources management program, 2004-2006. **Esteban Muldavin**, PI. 06/04-06/06. \$23,503 (F&A \$4,850).

\$110,747. US Fish & Wildlife Service. Banner #048660. River bar biodiversity studies, 03-08. **Esteban Muldavin**, PI. 08/03-08/08. \$42,332 (F&A \$8,735).

\$73,943. US Fish & Wildlife Service. Banner #048783. River bar vegetation mapping, 03-04. **Esteban Muldavin**, PI. 09/03-05/06. \$16,584 (F&A \$3,422).

\$60,000. BLM. Banner #048735. Santa Fe River vegetation analysis. **Esteban Muldavin**, PI. 08/03-12/06. \$32,303 (F&A \$6,666).

\$10,000. BLM. Banner #048711. Rio Grande vegetation monitoring program. **Esteban Muldavin**, PI. 05/06-12/06. \$3,991 (F&A \$1,038).

\$10,000. BLM. Banner #048587. Carlsbad playas survey. **Esteban Muldavin**, PI. 06/05-05/06. \$4,210 (F&A \$869).

\$10,000. Valles Caldera Trust. Banner #048538. Valles Caldera National Preserve vegetation map: forest community map revision. **Esteban Muldavin**, PI. 04/04-04/09. \$785 (F&A \$162).

\$16,000. BLM. Banner #048888. BLM gypsum buckwheat surveys. **Phil Tonne**, PI. 05/04-12/05. \$1,864 (F&A \$385).

\$12,000. USFS. Banner #048541. Holy Ghost ipomopsis propagation-US Forest Service. **Phil Tonne**, PI. 10/04-06/06. \$4,712 (F&A \$972).

\$11,623. NPS. Banner #048636. Rare, threatened, & endangered plant species along Rattlesnake Trail. **Phil Tonne**, PI. 04/05-12/05. \$541 (F&A \$71).

\$6,400. NPS. Banner #048698. Rattlesnake Springs plant surveys. **Phil Tonne**, PI. 04/06-12/06. \$1,294 (F&A \$169).

\$8,750. NM Energy, Minerals & Natural Resources Dept.. Banner #048665. Endangered species recovery. **Phil Tonne**, PI. 10/05-06/06. \$8,474 (F&A \$1,412).

\$8,500. NM Energy, Minerals & Natural Resources Dept.. Banner #048661. Holy Ghost ipomopsis planting. **Phil Tonne**, PI. 09/05-09/06. \$8,500 (F&A \$1,754).

\$19,358. NM Energy, Minerals & Natural Resources Dept.. Banner #048776. Sacramento prickly poppy research. **Phil Tonne**, PI. 09/06-06/07. \$149 (F&A \$25).

7. PUBLICATIONS

A. Books, Book Chapters, Edited Volumes

None

B. Journal Articles

Houlahan, J.E., D.J. Currie, K. Cottenie, G.S. Cumming, S.K.M. Ernest, C.S. Findlay, S. D. Fuhlendorf, U. Gaedke, P. Legendre, J.J. Magnuson, B H. McArdle, **E.H. Muldavin**, D. Noble, R. Russell, R.D. Stevens, T.J. Willis, I.P. Woiod, and S.M. Wondzell. 2006. Compensatory dynamics are rare in natural ecological communities. PNAS 104: 3273- 3277.

Johnson, K., T.B. Neville, and P. Neville. 2006. GIS habitat analysis for lesser prairie-chickens in southeastern New Mexico. BMC Ecology 6:18.

Peters, D.P.C., J.R. Gosz, W.T. Pockman, E.E. Small, R.R. Parmenter, S.L. Collins, and **E. Muldavin**. 2006. Integrating patch and boundary dynamics to understand and predict biotic transitions at multiple scales. Landscape Ecology 21:19-33.

C. Web-Based

None

D. Technical Reports

Arbetan, P. and E. Muldavin. 2006. Report of a survey for Wright's Justicia (*Justicia wrightii*) in Southeastern New Mexico for the New Mexico Army National Guard. Natural Heritage New Mexico, University of New Mexico. 16p.

Arbetan, P. and E. Muldavin. 2006. Report of gray vireo monitoring surveys at the New Mexico Army National Guard Camel Tracks Training Area. 21 p.

Johnson, K., T. Neville, and J. Bennett. 2006. Evaluation of high resolution digital aerial photos to survey for Gunnison's prairie dogs. University of New Mexico, Department of Biology, Museum of Southwestern Biology, Natural Heritage New Mexico Publication No. 05-GTR-290. 20 pp.

Johnson, K., T. Neville, and A. Kirk. 2006. Remote sensing re-survey of black-tailed prairie dog towns in Southeastern New Mexico. University of New Mexico, Department of Biology, Museum of Southwestern Biology, Natural Heritage New Mexico Publication No. 06-GTR-296. 22 pp.

Johnson, K. and J. Smith. 2006. Interdependence of pinyon pines and pinyon jays, White Sands Missile Range, NM, 2004-2005 final report. NHNM Publication No. 06-GTR-309. Natural Heritage New Mexico, Museum of Southwestern Biology, University of New Mexico, Albuquerque, NM. 30 pp.

Milford, E., E. Muldavin, and K. Mann. 2006. Vegetation sampling for the Middle Rio Grande: Resampling the 1984 Hink and Ohmart Transects. Natural Heritage New Mexico Publication No. 06-GTR-294. 17 p.

Milford, E., E. Muldavin, Y. Chauvin, and A. Browder. 2006. Santa Fe River vegetation monitoring, Report 2003-2005. Natural Heritage New Mexico Publication No. 06-GTR-305. 50 p.

Muldavin, E., T. Neville, Y. Chauvin, and A. Browder. 2006. A vegetation survey and map of Boles Wells Water System Annex (Southern Portion) Holloman Air Force Base, New Mexico. Publication No. 06-GTR-303. Natural Heritage New Mexico, Museum of Southwestern Biology, Department of Biology, University of New Mexico. 28 p.

Muldavin, E., P. Neville, C. Jackson, and T. Neville. 2006. A vegetation map of Valles Caldera National Preserve, New Mexico. Publication No. 06-GTR-302, Natural Heritage New Mexico, Museum of Southwestern Biology, University of New Mexico. 59p.

Smith, J. and K. Johnson. 2006. Holloman Air Force Base Boles Well Water System Annex Bird Surveys. Natural Heritage New Mexico, Museum of Southwestern Biology, Department of Biology, University of New Mexico, NHNM Publication No. 06-GTR-304. 30 pp.

Smith, J. and K. Johnson. 2006. Southwestern willow flycatcher nesting success, cowbird parasitism, and habitat characteristics at the Pueblo of Isleta, New Mexico. Natural Heritage New Mexico, Museum of Southwestern Biology, University of New Mexico. 17 pp.

E. Theses/Dissertations Completed

None

F. Work In Progress (Only *in press* and already submitted)

Muldavin , E.H., D.I. Moore, S.L. Collins, K.R. Wetherill, and D.C. Lightfoot. (submitted). Aboveground net primary production dynamics in a northern Chihuahuan Desert ecosystem. submitted to *Oecologia* 04/01/2007

Muldavin, E. H., G. Harper, P. Neville, and S. Wood. (In press). A Vegetation classification of the Sierra del Carmen, U.S.A. and Mexico. Proceeding of the Fifth Annual Chihuahuan Desert Symposium. Chihuahuan Desert Research Institute, Alpine TX.

G. Publications/Reports Based on MSB Specimens/Data by Outside Researchers

We have no way of tracking publications that obtain our data from our web site, but the data are definitely used in publications.

8. ACTIVITIES IN LEARNED SOCIETIES

A. Invited/Plenary Talks and/or Seminars

None

B. Contributed Talks/Posters

P. Tonne. 2006. The endangered Sacramento prickly poppy. Poster presentation, Earth Day at Rio Grande Botanic Garden.

C. Attendance at Professional Meetings (List division personnel alphabetically then list meetings attended under each)

E. Muldavin

LTER All Scientist Meeting, September 20-23, Estes Park, CO

Workshop on Historical Fire Regimes in Piñon-Juniper Woodlands, August 22-24, Boulder, CO.

R. McCollough

Society for Preservation of Natural History Collections-NSCA Joint Meeting, 23-27 May, Albuquerque, NM.

D. Service as Editor or on Editorial Board of a Journal

None

E. Service as Officer of Professional Society/Organization

None

9. OTHER PROFESSIONAL ACTIVITIES

A. Presentation to General Audience in a Scholarly Capacity

None

B. Presentations in a Scholarly Capacity at Hearings, Workshops, Legislative Committees, etc.

E. Muldavin

Fire Learning Network Workshop, October 30, 2006, Las Cruces New Mexico.

C. Scholarly Service as a Member of a Local/State/Regional/National Committee, Panel, etc.

E. Muldavin

Ecological Society of America National Vegetation Classification Panel
National NatureServe Team for Ecological Integrity Assessment.

D. Journal Referee

K. Johnson

The Auk (1), American Midland Naturalist (1)

E. Muldavin

J. of Arid Environments (1), Ecology (1).

E. Hosting Professional Colloquia and Groups

None

10. SERVICE

A. Symposia, Workshops, Conferences etc. Sponsored, Organized, Held, etc.

None

B. Public Service

R. McCollough

Assisted the New Mexico Ornithological Society with disclaimers for their web site and added features to their web site and database to allow users to more easily search their information.

P. Tonne

Advised federal agencies on management plan for two endangered plant species.

Created GIS vegetation maps for NMED and for: Sivinski, R.C. 2007. Checklist of vascular plants of New Mexico, Occasional Papers of the Museum of Southwestern Biology 10:1-67.

11. ADVANCED STUDY, HONORS, AWARDS, FELLOWSHIPS, ETC.

None

12. DONATIONS AND GIFTS RECEIVED

None.

13. CURRENT STAFF

A. Faculty/Staff

Paul Arbetan, Research Assistant Professor
Michael Bobb, Field Research Tech/Life Sciences
Amanda Browder, Sr. Research Tech/Life Sciences
Yvonne Chauvin, Sr. Research Tech/Life Sciences
Brian Frank, Field Research Tech/Life Sciences
Kristine Johnson, Research Associate Professor
Rebecca Keeshen, Office Administrator
Kathryn Mann, Field Research Tech/Life Sciences
Rayo McCollough, Database Administrator
Elizabeth Milford, Research Scientist II
Esteban Muldavin, Research Associate Professor
Teri Neville, GIS Analyst
Jacqueline Smith, Sr. Research Tech/Life Sciences
Phil Tonne, Sr. Research Scientist I

B. Graduate students

William Dunn, Ph.D.
Sudheendra Muppavarapu, M.S.
Yashoda Pidaparthi, M.S.
Kevin Wesley, M.F.A

C. Undergraduate Student Workers and Volunteers

Rhonda Francisco
Joanna Havens
Alexandra Kirk
Eric Lindahl
Kathryn Mann
Vy Nguyen
Kari Paustian
Jamie Ruiz

Sandy Sacher
Keith Woodell
Mary Alice Root, Volunteer

14. MUSEUM ASSOCIATES

None

U.S. GEOLOGICAL SURVEY

1. DIVISION HIGHLIGHTS

After 33 years of Federal Service as a museum curator and research zoologist with the U.S. Fish and Wildlife Service, National Biological Survey, and U.S. Geological Survey, Curator Mike Bogan retired in April. He continues to provide service to the MSB as a Curator Emeritus and conducts research and publishes scholarly articles on the status and distribution of mammals in the Southwest.

Collection manager Cindy Ramotnik co-hosted the joint annual meeting of the Society for the Preservation of Natural History Collections (SPNHC) and the Natural Science Collections Alliance (NSCA) in May. The meeting attracted a record number of attendees and highlighted collaborative efforts of scientific collections with other museums, state and government organizations, private entities, and international groups. An unrestricted donation of \$4,253 was made to SPNHC from the USGS Albuquerque Local Committee.

Approximately 98% of the dry specimens of chiropterans (bats) in the MSB and USGS collections have been physically integrated. Several thousand USGS mammal specimens have been re-catalogued into the MSB mammal collection by attaching new MSB skin tags to USGS specimens. The acquisition of funds to hire two fulltime students for six months allowed USGS to upgrade storage of its fish specimens and to inventory the contents of all tanks, oversized glass jars, and ceramic crocks. Ramotnik completed the final report to the USDA Forest Service on a five-year study that examined the impact of wildfire on the Sacramento Mountains salamander, one of two endemic plethodontid salamanders in the state. She is currently working on several manuscripts.

Research involving the collections included continuing examination and summary of results of specimens collected during National Park Service (NPS) mammal inventories in selected southwestern parks. This work is under the supervision of Keith Geluso, formerly of USGS and now at the University of Nebraska-Kearney; Ernie Valdez of USGS; and Bogan, USGS Curator Emeritus. Geluso, Valdez, and Bogan are continuing to examine specimens, and they have prepared two manuscripts on mammals from national parks (bats of Canyonlands National Park, with Dr. Tony Mollhagen of Texas Tech University, and an overview of mammal inventories of southern Colorado Plateau parks).

Ernie Valdez, permanent USGS Wildlife Biologist who received his Ph.D. from UNM in 2006, conducted field work on bats at Mesa Verde National Park, together with biologists from the USGS Fort Collins Science Center (FORT), and Colorado State University. The emphasis of this study involves radio tracking bats to maternity roosts so that these roosts can be protected by the park. Valdez also continued his studies on ectoparasites, food habits, and morphology of bats of the region and submitted several chapters from his Dissertation for publication. Valdez finalized a report to the National Park Service on small mammal inventories conducted at Great Sand Dunes National Park and Preserve and Florissant Fossil Beds National Monument 2003–2004. He was active in the New Mexico Bat Working Group and wrote multiple species accounts for the group's Bat Conservation Plan. He also presented a paper at the 53rd annual meeting of The

Southwestern Association of Naturalists, in Colima, Mexico, on geographic variation of cranial morphology and food habits of *Myotis occultus*.

Janet Ruth, a USGS Research Ecologist/Ornithologist, completed final writing on a co-authored manuscript describing habitat use in wintering grassland birds in southeastern Arizona. Ruth also submitted a report to Arizona State Parks in connection with repeats of historical roadside surveys for the breeding distribution of the Arizona Grasshopper Sparrow in southwestern New Mexico and southeastern Arizona. The second year of a three-year project using NEXRAD radar data to document bird migration patterns and stopover habitat in the Southwest has been completed in collaboration with a colleague at the University of Southern Mississippi. In October 2006 Ruth also developed and hosted a USGS-USFWS interagency workshop on applying radar technology to natural resource issues in Albuquerque. As the official USGS liaison to Partners in Flight (PIF), Ruth attended national meetings of PIF's Implementation and Science committees.

2. TABLE OF COLLECTION USE

Specimens catalogued	Loans (outgoing)	Loans (incoming)	Visitors	Information Requests	Publications Citing MSB Specimens
270	See DOM	See DOM	See DOM	See DOM	See DOM

3. COURSES USING THE COLLECTIONS

See MSB Divisions.

4. COURSES TAUGHT BY MSB/USGS PERSONNEL

A. Faculty/Collection Managers

Ernie Valdez taught two mini-courses on diet analyses of insectivorous bats to two graduate students from Colorado State University and Baylor University, and one assistant professor from the University of Nebraska at Kearney.

B. Graduate Students

None.

5. COLLECTION MANAGEMENT

Bogan began an effort to curate specimens of *Myotis* in particular and vespertilionid bats in general as they were integrated into the collection. Ramotnik spent most of her time during the first five months of the year preparing for a joint meeting of two natural history collection organizations, SPNHC and NSCA. Ramotnik met with and conducted regular meetings with the local committee; organized the vendor tradeshow and corresponded with all sponsors and vendors; organized a special session, "Federally-associated collections in non-Federal repositories;" coordinated with the hotel, local convention service company, and security

company; oversaw field trip preparations; and worked closely with the NSCA host to ensure that all aspects of the meeting went smoothly. In 2006 USGS accessioned 11 collections, including 18 amphibians and reptiles and 88 mammals from the southwestern U.S. Ramotnik trained and supervised two full-time museum technicians and a volunteer. Efforts continued on maintenance and curation of the federal collection of vertebrates and on integration of UNM and USGS specimens. Approximately 12,000 dry specimens of chiropterans (bats) in the MSB and USGS mammal collections were physically integrated. This effort is ~98% complete and data verification will be completed in 2007. Several thousand USGS mammal specimens have been re-catalogued into the MSB collection by attaching new MSB skin tags to USGS specimens. Considerable effort and time were spent upgrading the storage of USGS fish specimens and inventorying the contents of all tanks (6 small and 10 large), oversized glass jars (N=84; 17 containing catalogued specimens and 67 containing uncatalogued specimens), and ceramic crocks (N=7). The contents of 37 oversized glass jars and 7 ceramic crocks (approximately 120,490 specimens) were labeled and transferred into stainless steel tanks with fresh alcohol. Ramotnik also worked with FORT staff in Fort Collins, CO, and the USGS Museum Property Program in Reston, VA, to secure additional funding for the collection. Ramotnik served on the publicity committee for the October CERIA dedication, and with Bogan participated in periodic meetings of Bird and Mammal Division staffs and monthly meetings with MSB staff.

6. AWARDS, GRANTS, AND CONTRACTS

\$12,500. USGS, Fort Collins Science Center. Upgrade storage conditions of USGS fish collection. **C.A. Ramotnik**, PI. 6/06-12/06. \$12,500. (FA \$0)

\$160,000. USDA Forest Service, Alamogordo, NM. NM-IA-01-08. Fire-effects study on the Sacramento Mountain salamander (*Aneides hardii*) and its invertebrate prey base. **C.A. Ramotnik**, PI. 12/01-09/06. \$28,500. (FA \$0)

\$12,000. Sonoran Joint Venture. # 201814N766. Bird migration patterns in the arid Southwest. **J.M. Ruth**, PI (R. Diehl [USM] Co-PI). 03/05-02/08. \$12,000. (FA \$0)

\$10,000. Lannan Foundation. Bird migration patterns in the arid Southwest. **J.M. Ruth**, PI (R. Diehl [USM] Co-PI). 03/05-02/08. \$3,000. (FA \$0)

\$15,000. USFWS, Region 2, Migratory Bird Office. # 201814N766. Bird migration patterns in the arid Southwest. **J.M. Ruth**, PI (R. Diehl [USM] Co-PI). 03/05-02/08. \$9,100. (FA \$0)

\$89,000. USGS Science Support Program. Bird migration patterns in the arid Southwest. **J.M. Ruth**, PI (R. Diehl [USM] Co-PI). 03/05-02/08. \$15,200. (FA \$0)

\$3,000. USFWS, Migratory Bird Office, Region 6. # 60181-3-N410, Assessment of grassland birds of conservation concern. **J.M. Ruth**, PI. 10/03-09/06. \$1,000. (FA \$0)

\$5,000. Arizona State Parks. 06-0044. Distribution and abundance of breeding Arizona Grasshopper Sparrow and associated priority grassland species. **J.M. Ruth**, PI. 10/04-04/06. \$3,000. (FA \$0)

7. PUBLICATIONS

A. Books, Book Chapters, Edited Volumes

None

B. Journal Articles

Geluso, K. 2006. Bats in a human-made forest of central Nebraska. *The Prairie Naturalist* 38:13-23.

Ramotnik, C.A. 2006. Handling and care of dry bird and mammal specimens. Conserve O Gram Number 11/9. U.S. National Park Service, Park Museum Management Program, Washington, DC. 5 pp.

C. Web-Based

Blancher, P.J., B. Jacobs, A. Couturier, C.J. Beardmore, R. Dettmers, E.H. Dunn, W. Easton, E.E. Iñigo-Elias, T.D. Rich, K.D. Rosenberg, and **J.M. Ruth**. 2006. Making connections for bird conservation: linking states, provinces, and territories to important wintering and breeding grounds. Partners in Flight Technical Series No. 4, Partners in Flight, <http://www.partnersinflight.org/pubs/ts/04-Connections>

D. Technical Reports

Diehl, R., R.F. Felix, and **J.M. Ruth**. 2006. Bird migration patterns in the arid Southwest: Year I. Administrative Report submitted to USGS Science Support Program, Reston, VA, and other project funders.

O'Shea, T. J., P.M. Cryan, L.E. Ellison, and **E.W. Valdez**. 2006. Bat use of coniferous forests at Mesa Verde National Park: Year 1 Progress Report. Administrative Report submitted to USGS Natural Resources Preservation Program and National Park Service.

Ramotnik, C.A. 2006. Impact of the Scott Able fire on Sacramento Mountain salamander abundance and arthropod prey base: Final report. Administrative Report submitted to Lincoln National Forest, USDA Forest Service, Alamogordo, NM. 81 pp.

Ruth, J.M. 2006. Distribution and abundance of breeding Arizona Grasshopper Sparrow (*Ammodramus savannarum ammodramus*), and associated priority grassland species, in the Southwestern U.S.: 2005. Administrative Report submitted to Arizona State Parks, Benson, AZ.

Valdez, E.W. 2006. Small mammal inventory at Great Sand Dunes National Park and Preserve and Florissant Fossil Beds National Monument, 2003–2004. Administrative Report submitted to National Park Service.

E. Theses/Dissertations Completed

Valdez, E.W. May 2006. Geographic variation in morphology, diet, and ectoparasites of *Myotis occultus* in New Mexico and southern Colorado. Ph.D., **M.A. Bogan** and J.S. Altenbach, co-advisors.

F. Work In Progress (Only in press and already submitted)

Benson, L., H. Taylor, K. Peterson, B. Shattuck, and **C.A. Ramotnik**. Development and evaluation of geochemical methods for the sourcing of archaeological maize. Journal of Archaeological Science.

Bogan, M.A., T.R. Mollhagen, K. Geluso, and S. Haymond. The bats of Canyonlands National Park.

Bogan, M.A., K. Geluso, S. Haymond, and **E.W. Valdez**. An overview of inventories for mammals on the Southern Colorado Plateau. National Park Service Science Reports.

Frey, J.K., **M.A. Bogan**, and T.L. Yates. Mountaintop island age determines species richness of boreal mammals in the American Southwest. Ecography.

Valdez, E.W. Species account: *Myotis evotis*. New Mexico Bat Conservation Plan. New Mexico Bat Working Group Website.

Valdez, E.W. Species account: *Myotis volans*. New Mexico Bat Conservation Plan. New Mexico Bat Working Group Website.

Valdez, E.W. Species account: *Myotis occultus*. New Mexico Bat Conservation Plan. New Mexico Bat Working Group Website.

Valdez, E.W. and P.M. Cryan. Food habits of the hoary bat (*Lasiurus cinereus*) in New Mexico during spring migration. The Southwestern Naturalist.

Valdez, E.W. and K. Geluso. Late seasonal activity and diet of the evening bat (*Nycticeius humeralis*) in Nebraska. Western North American Naturalist.

G. Publications/Reports Based on MSB Specimens/Data by Outside Researchers

See DOM results.

8. ACTIVITIES IN LEARNED SOCIETIES

A. Invited/Plenary Talks and/or Seminars

None.

B. Contributed Talks/Posters

Diehl, R., R.K. Felix Jr., and **J.M. Ruth**. 2006. Regional structure in migratory patterns across the Southwest. Applying radar technology to migratory bird conservation and management: strengthening and expanding a collaborative effort. USGS-USFWS workshop. Albuquerque, NM. October.

Felix Jr., R.K., R. Diehl, and **J.M. Ruth**. 2006. Patterns aloft of songbird migrants in the southwestern United States. North American Ornithological Conference, Veracruz, Mexico. October.

Ruth, J.M. 2006. Abundance and distribution of Arizona Grasshopper Sparrow (*Ammodramus savannarum ammodramus*): current and historical surveys. North American Ornithological Conference, Veracruz, Mexico. October.

Valdez, E.W. 2006. Geographic variation of cranial morphology and food habits of *Myotis occultus*. The Southwestern Association of Naturalists, Colima, Mexico. April.

C. Attendance at Professional Meetings

Bogan, M.A.

Joint annual meeting of SPNHC-NSCA, Albuquerque, NM, May.

Ramotnik, C.A.

Joint annual meeting of SPNHC-NSCA, Albuquerque, NM, May.

Ruth, J.M.

Joint meeting of the North American Ornithological Conference, Veracruz, Mexico, October.

Ruth, J.M.

Annual meeting of the New Mexico Ornithological Society, Albuquerque, NM, May.

Valdez, E.W.

Annual meeting of The Southwestern Association of Naturalists, Colima, Mexico, April.

D. Service as Editor or on Editorial Board of a Journal

Ramotnik,

C.A. Associate Editor, Collection Forum (SPNHC).

E. Service as Officer of Professional Society/Organization

Ramotnik,

C.A. SPNHC: Conservation Committee (Chair, Resources Subcommittee)

Member of Conference, Membership, and Publication committees.

9. OTHER PROFESSIONAL ACTIVITIES

A. Colloquium Presentations

None

B. Presentation to General Audience in a Scholarly Capacity

Ruth, J.M.

Identifying winter sparrows and associates. Central New Mexico Audubon Society, Albuquerque, NM. February.

C. Presentations in a Scholarly Capacity at Hearings, Workshops, Legislative Committees, etc.

None.

D. Scholarly Service as a Member of a Local/State/Regional/National Committee, Panel, etc.

Ramotnik, C.A.

Member, New Mexico Endemic Salamander Team.

Ruth, J.M.

USGS Partners in Flight (PIF) Co-Coordinator
Chair of National Research Working Group; member of Science Committee.

E. Journal Referee

Bogan, M.A.

Journal of Mammalogy (4), Western North American Naturalist (2), Southwestern Naturalist (2).

Ramotnik, C.A.

Collection Forum (1)

Ruth, J.M.

Journal of Field Ornithology (1).

10. SERVICE

A. Symposia, Workshops, Conferences etc. Sponsored, Organized, Held, etc.

Bogan, M.A.

Moderated a special session, "Federally-associated collections in non-Federal repositories" during the joint annual meeting of SPNHC-NSCA, Albuquerque, NM, May.

Bogan, M.A.

Member of local committee for American Society of Mammalogists, annual meeting to be held at UNM, June 2007.

Ramotnik, C.A.

Co-host of joint annual meeting of SPNHC-NSCA, Albuquerque, NM, May.

Member of local committee for American Society of Mammalogists, annual meeting to be held at UNM, June 2007.

Ruth, J.M.

Leading an effort among USGS, USFWS, and potential partners to develop a collaborative approach to applying radar technologies to bird conservation and management issues, 2006 and ongoing.

Led a planning committee for a joint USGS-USFWS workshop to apply radar technologies to natural resources issues. Workshop involved participants from multiple federal and state agencies, and NGOs, Albuquerque, NM, October.

Valdez, E.W.

Chaired session at 53rd annual meeting of The Southwestern Association of Naturalists, Colima, Mexico, April.

Valdez, E.W.

Member of local committee for American Society of Mammalogists, annual meeting to be held at UNM, June 2007.

B. Public Service

Ramotnik, C.A.

Participated in the 2006 Albuquerque Christmas Bird Count.

Ruth, J.M.

Participated in the 2006 Albuquerque Christmas Bird Count. Conducted/participated in two Breeding Bird Survey routes: Counselors, NM and Fence Lake, NM.

11. ADVANCED STUDY, HONORS, AWARDS, FELLOWSHIPS, ETC.

Bogan, M.A.

Served as Faculty Co-Advisor for four doctoral candidates in the Department of Biology, UNM, and as a member of additional doctoral committees.

Ramotnik, C.A.

USGS Star Award for co-hosting joint meeting of SPNHC-NSCA.

SPNHC Special Services Award for efforts in organizing and hosting the 2006 annual meeting in Albuquerque.

Ruth, J.M.

USGS Star Award for organizing and facilitating USGS-USFWS radar workshop.

12. DONATIONS AND GIFTS RECEIVED

None.

13. CURRENT STAFF

A. Faculty/Staff

Michael A. Bogan—Research Wildlife Biologist and Curator Emeritus

Cindy A. Ramotnik—Collections Manager

Janet M. Ruth—Research Ecologist (Ornithology)

Ernest W. Valdez—Wildlife Biologist

B. Graduate students

Angela England—Wildlife Biologist, Ph.D. candidate

Christa D. Weise—Wildlife Biologist, Ph.D. candidate

C. Undergraduate Student Workers and Volunteers

Jeb Brown, undergraduate student worker

Evan Harris, undergraduate student worker

Ian Murray, volunteer (graduate student)

14. MUSEUM ASSOCIATES

A. Curatorial Associates

None.

B. Research Associates

Paul Cryan, Ph.D., USGS wildlife research biologist, Fort Collins, CO.

Robert B. Finley, Ph.D., emeritus curator, Boulder, CO.

Tony R. Mollhagen, Ph.D., emeritus professor, Texas Tech Univ., Lubbock, TX.

Tom O'Shea, Ph.D., USGS wildlife research biologist, Fort Collins, CO.