FRIENDS OF ORNITHOLOGY Newsletter

Number 4 May 2007

D. Core



Grus, The Crane (Willughby & Ray 1678)

From the Curator Kevin Winker

As I write this, the light snow cover that we had in Fairbanks this year is almost gone, and reports on global warming are in the news every day. Spring is here, and, as usual, it is welcome. Geese have arrived at Creamer's Field, and Sandhill Cranes can't be far behind. Fieldwork is already under way. I spent part of March in the Philippines with Tom Braile sampling resident and migratory birds there before the latter departed for higherlatitude breeding destinations (including Alaska). We have yet to detect avian influenza in the Philippines, where we have been sampling since 2001, but these baseline data are important in a region that is in the world's spotlight because of the highly pathogenic strain of H5N1.

Our avian influenza (AI) work in Alaska begins its 10th year with this season. Our study is the first long-term AI research in Alaska, and also the first long-term work in the high-latitude regions of North America. With the USDA and other important collaborators, we summarized our work in a recent publication in Emerging Infectious Diseases (April 2007). This publication is not the type that one normally associates with a museum research program, but it represents a new, highly interdisciplinary forum in which museum scientists will increasingly become involved in the 21st century. A classic understanding of birds as disease vectors has become an important commodity in an increasingly connected world. As AI fever consumed the media during the past year and I had interview requests every few days, I marveled at how little people cared over ten years ago when we began our own work on this topic. I trust that we will be able to continue to make contributions to this rapidly growing area of research. And birds carry other diseases, too.

The Museum construction has neared completion,

and we are in the process of rearranging the entire Bird Collection. The collection's rapid growth during the past decade has made it difficult to keep up with cabinet space and taxonomic arrangement, and this long-awaited, total move will give Dan Gibson and me a great deal of satisfaction and provide us much better access to the full collection.

Our group has morphed. James Maley and David Shaw fledged with their Masters degrees; James has gone to work on a PhD at Louisiana State University, and Dave is now a Research Biologist at the Alaska Bird Observatory here in Fairbanks. Christin Pruett left us to go to the Sutton Research Center in Oklahoma. Erin Carr has moved on to work with the USDA here at the university. Cyndie Beale, a teacher at West Valley High School, has joined our lab for molecular genetics research over two summers, and Dara Rehder, Alex Grantham, and Jason Minné joined us in the prep lab as undergraduates for the academic year. Things are jumping!

As always, support from The Friends is an integral part of our success, especially to keep our students active and productive.

The Department of Ornithology

Although our existence and many of our activities are centered around the Bird Collection, it is the people involved who make things happen:

Residents

Kevin Winker (Curator) Daniel Gibson (Collections Manager) Brina Kessel (Curator Emeritus)

Students

Thomas Braile (graduate student) *Carrie Topp* (MS student) James Maley (MS student; degree May '06) *Matthew Miller* (PhD student) David Shaw (MS student; degree May '06) Elizabeth Humphries (MS student) Michael Lelevier (MS student) Erin Carr (undergraduate, postgraduate) Dara Rehder (undergraduate) Jason Minné (undergraduate) Alex Grantham (undergraduate)

Research Associates

Heinrich Springer

Johannes Erritzoe Rose A. Z. Meier

Kevin McCracken

Christin Pruett

David Sonneborn

Michael Schwitters Steven Heinl Joshua Bacon

Volunteers

ANNUAL REPORT - ORNITHOLOGY FY06

Last November we celebrated Curator Emeritus Brina Kessel's 80th birthday and her more than 50 years of contributions to Alaska ornithology. Surprise guests included Brina's brothers and sisters and Bob Dickerman. Congratulations, Brina! This year our staff and volunteers went on 10 field expeditions. Five of these trips were made to sample Alaska localities ranging from the Near Islands in the Aleutians to the Unalakleet area and Cordova. Other expeditions were made to Panama, Peru, Belize, and Russia. Our work with the U.S. Department of Agriculture continues to screen birds for avian influenza and to determine pathways of migratory transport of this emerging disease. This was our ninth year of this avian influenza work. Curator Kevin Winker was repeatedly interviewed by media across the country about our avian influenza work; these interviews appeared on radio, television, and in newspapers. Our collecting, salvaging, and preparation efforts resulted in the cataloguing of 1,000 new specimens into the collection. As in past years, we were able to field a host of stellar volunteers. Highlights of the year included surviving another year in a construction zone, moving into new

lab and office space, and Daniel Gibson and Vernon Byrd completing and submitting their longawaited monograph on Aleutian birds. Erin Carr completed a hands-on collection of bird specimens for West Valley High School biology classes (a project done in conjunction with the Education Department), and West Valley High School teacher Cyndie Beale worked with us this past summer in the molecular genetics laboratory. Two graduate students successfully defended their Masters theses: James Maley and David Shaw. James began a PhD program at Louisiana State University, and Dave is now Research Biologist at the Alaska Bird Observatory. Good luck James & Dave!

| Volunteer hours | 2,606 |
|-----------------------|-------|
| Acquisitions | 1,000 |
| Grants | 3 |
| Publications | 13 |
| Reports | 15 |
| Loans | 17 |
| Data requests | 91 |
| Professional visitors | 23 |
| Student visitors | 201 |
| Public contacts | 150 + |

Students working with collections

| PhD | 4 |
|----------------|---|
| MS | 5 |
| Undergraduates | 8 |

FROM STAFF & STUDENTS

Daniel D. Gibson

The occasion of Brina Kessel's 80th birthday provided an appropriate time to review her career and her prominent influence on bird study in Alaska. Her lifelong interest in birds developed during childhood. She earned a B.S. and Ph.D. at Cornell University and an M.S. at the University of Wisconsin at Madison. She conducted a 7-year study of the European Starling (Sturnus vulgaris) while at Cornell, where she also participated in the sound-recording program (birds and



Brina Kessel (photo by Barry McWayne)

frogs) of the Laboratory of Ornithology.

She joined the faculty of the University of Alaska in 1951—in the days when the Fairbanks campus was the *entire* University of Alaska—and for the 55+ years thereafter she has conducted research and published on many aspects of Alaska's avifauna, with particular emphasis on birds of the taiga and tundra. That research was always balanced with important administrative responsibilities, and over many years she served the university as, variously, Professor of Zoology, Dean of the College of Biological Sciences and Renewable Resources, Dean of Graduate Studies, and Curator of the University of Alaska Museum's terrestrial vertebrate collections.

Her early Alaska fieldwork, in the 1950s, would have taken her to the North Slope, but in those days the Department of Defense would not allow a woman to conduct fieldwork in U.S. Naval Petroleum Reserve #4. Male students conducted the fieldwork in her stead, but she was the one who analyzed and published the results (see Kessel and Cade 1958). A few years later, with the legendary Olaus and Margaret Murie, she worked in the Brooks Range (see Kessel and Schaller 1960)—an experience and an association she has always treasured. Not long thereafter she began a particular interest in birds and avian habitats on the Seward Peninsula, where she conducted fieldwork for many years (see Kessel 1989).

In 1965 she drove a new Buick Riviera from Detroit to Fairbanks. Some time later, that year or the next, Brina was asked why her still-pristine-looking Riviera was missing all four wheel covers, to which she replied, "They're in the trunk; that way I can't lose one and wind up with a less-than-complete set." (Losing wheel covers was a real risk on Fairbanks roads in those days.) In 1968 she convinced the American Ornithologists' Union to hold its first Alaska meeting—in Fairbanks and at the University of Alaska.

In 1973 she became one of the very first women to be elected a Fellow of the American Ornithologists' Union, which organization she later served as President (1992-1994). At the AOU's 111th meeting (its second Alaska and Fairbanks meeting, in 1993), she was honored by the founding of the "Brina Kessel Medal for Excellence in Science," an award since presented annually to an undergraduate student at the University Alaska Fairbanks.

In the early 1980s she conducted multi-year fieldwork in the upper Susitna River valley (in anticipation of the construction of a hydro-power dam there). During that time she wore in the field a ballcap emblazoned with the logo of Era Helicopters, Inc.[ERA]—which at least some others thought she wore in tacit support of passage of the Equal Rights Amendment.

In 1997 she formally retired—as Professor Emeritus, Dean Emeritus, and Curator Emeritus—from her academic career at the University of Alaska Fairbanks, but her research has continued, if at a less energetic pace. And everyone remembers who she is, who and where she has been, and what she has accomplished. At the 2004 Alaska Bird Conference, in Anchorage, she was the recipient of the Isleib Award in avian conservation, and, later, the Alaska Bird Observatory named "Kessel Pond" at Creamer's Field Migratory Waterfowl Refuge, in Fairbanks. Today Brina continues to work on a handbook of the "Birds of Alaska."

Partial Bibliography of Brina Kessel

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Brina Kessel with visiting family celebrating her contributions to Alaska and ornithology on the occasion of her 80th birthday.

(photo by Barry McWayne)

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Brina Kessel and Bob Dickerman (photo by Barry McWayne)

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Michael Lelevier

From an early age, I knew that I wanted to devote my life to the study of the natural world, and it was that desire that initially brought me to the University of Alaska. As a student of Wildlife Biology, I quickly became captivated by avian diversity. My fascination eventually drove me to start volunteering to prepare bird specimens at the museum in 2003. I was immediately taken by the concept of combining Art and Science to produce esthetically pleasing specimens that would be of immense scientific value. In addition to whetting my appetite for specimen-based research, my time as a museum volunteer, and eventually an employee, helped me to gain valuable field experience. Interspersed with my time as an undergraduate curatorial assistant, I was able to work as a field tech in rural Nebraska, on the Y-K delta, and in the National Petroleum Reserve.

In 2005, after I graduated with a Bachelor's degree in Wildlife Biology, I decided to expand my

horizons by spending a semester abroad in Peru. Prior to my leaving, I was asked by Dr. Winker whether I would be interested in accompanying Dr. McCracken, another UAF professor, on his Peruvian collecting trip into the high Andes. Without a moment's hesitation, I enthusiastically agreed. As my trip drew near, I was additionally offered a position as a Masters student under Dr. Winker, working on South and Central American birds. This opportunity was beyond my wildest dreams. I had always wanted to work abroad on exotic animals, but to my amazement, I now was in a position to do just that.

By the time I departed for Peru, my three-month vacation now included a month of fielwork in the high Andes and what would eventually become eight months working at the Smithsonian Tropical Research Institute (STRI) in Panama City, Panama. My time in Panama would be spent working with one of Dr. Winker's PhD students, Matthew Miller, to develop my Masters research.

My time abroad gave me some of the most amazing field experiences of my life. Some of my most memorable moments occurred during my time in the Andes, with Dr. McCracken. One moment that sticks out in my mind occurred while I was following a group of Andean Negrito (*Lessonia oreas*) around a hill, at 4500 meters. As I rounded the bend, I was focusing on being quiet when I caught a sea of pink out of the corner of my eye. When I looked up, I realized that I was standing in front of about 200 Chilean Flamingo (*Phoenicopterus chilensis*). I can't even describe how excited and amazed I was at that moment. It was quite literally one of the most breathtaking sights I had ever seen.

While I was in Panama, I was able to work in the western provinces of Chiriqui and Bocas del Toro, the far eastern Darien Province, and nearly every province in between. Throughout my travels, I was just amazed by the levels of avian diversity I was exposed to. It was this fascination that helped me to develop my thesis research. I was able to develop projects that use both traditional museum-based research techniques, which I had been exposed to as a curatorial assistant, and the molecular methods I had learned during my time at the Smithsonian.

The first chapter of my thesis uses mitochondrial DNA to examine the evolutionary history of the Rufus-tailed Hummingbird (*Amazilia tzacatl*), a common resident of Central America and northwestern South America. My research has been able to show that within the last 25 years South and Central American populations of the Rufus-tailed Hummingbird have colonized the eastern Darien province of Panama, thus connecting the species' historically disjunct distribution. The second chapter of my thesis uses a



Kevin McCracken, Michael Lelevier, and friends in the high Andes of Peru. (photo by Peggy Guitton)

combination of mitochondrial and nuclear genes to examine the evolutionary history of a widespread genus of hummingbirds, *Anthracothorax*. Currently, the genus *Anthracothorax*, also known as the mangoes, contains seven species distributed throughout the West Indies, Central, and South America. Through my research I hope to determine whether the genus radiated out of or into the West Indies. Initial results suggest that the genus originated within the West Indies and later radiated out onto the mainland.

The third chapter of my thesis, and perhaps the most complex, will use a combination of mitochondrial DNA, UV spectral data, and morphological data to examine the interplay of evolution and the divergence of phenotypic characters throughout the distribution of the White-breasted Wood-wren (*Henicorhina leucosticta*). Initial data suggest that South and Central American populations of the White-breasted Wood-wren have been separated for an extended length of time. Preliminary examination of study skins from throughout the range of the species shows plumage breaks that seem to correspond to the genotypic breaks we are recovering from the mitochondrial DNA.

As you can see, my thesis research is diverse and

incorporates both modern molecular techniques and traditional, specimen-based methods. I truly believe that the incorporation of each of these methods will help to make me a well-rounded researcher, and that my experiences as a student here at UAF have put me well on my way to becoming a productive member of the Ornithological research community. I look forward to sharing my future work and experiences with all of you in the coming years.

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If you know of someone else who might like to become a member, please pass along a copy of the enclosed membership materials or point them to our web page at www.uaf.edu/museum/bird

RECENT PUBLICATIONS (ANNOTATED)

Winker, K., and **C. L. Pruett**. 2006. Seasonal migration, speciation, and morphological convergence in the *Catharus* thrushes (Aves: Turdidae). Auk 1052-1068.

The effects of seasonal migration on evolutionary change within lineages is poorly understood, both in terms of differentiation (cladogenesis) and specialization (anagenesis). Using morphological and molecular phylogenies in the avian genus Catharus (Aves: Turdidae), we find that long-distance seasonal migration arose independently four times in the genus and that correlated morphological evolution occurred among several characters in these lineages, perhaps stemming from ecological conditions in Nearctic forests.

Spackman, E., K. McCracken, K. Winker, and D. Swayne. 2006. Avian influenza virus found in a South American wild duck is a precursor to the Chilean 2002 H7N3 poultry outbreak, contains genes from North American wild bird and equine lineages, and is adapted to domestic turkeys. Journal of Virology 80:7760-7764.

Burg, T., A. J. Gaston, K. Winker, and V. L. Friesen. 2006. Effects of Pleistocene glaciations on population structure of North American chestnut-backed chickadees. Molecular Ecology 15:2409-2419.

Using seven microsatellite markers we found evidence of population structure among nine populations (N = 249 individuals) of Chestnut-backed Chickadees (Parus rufescens) in northwestern North America. The pattern of population structure among contemporary chickadee populations is consistent with a pioneer model of colonization following glacial retreat.

Rocque, D. A., M. Ben-David, R. P. Barry, and K. Winker. 2006. Assigning birds to wintering and breeding grounds using stable isotopes: lessons from two feather generations among three intercontinental migrants. Journal of Ornithology 147: 395-404.

Using feather stable isotopes in two generations of feathers from three bird species (American and Pacific golden-plovers, Pluvialis dominica and P. fulva, and Northern Wheatears Oenanthe oenanthe) that breed in North America and winter in South America, the South Pacific and Asia, and Africa, we were unable to accurately assign feathers to origin of growth on the continental scale, and we urge researchers to carefully consider the ecology and physiology of their study organisms, statistical methodology, and the interpretation of results when using stable isotopes to infer the geographic origins of feather growth. Winker, K. 2006. [Review of] Handbook of the birds of the world, Vol. 10: Cuckoo-shrikes to thrushes. Loon 78:114-115.

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Gibson, D. D., and B. Kessel. 2006. Status and distribution of the Curlew Sandpiper *Calidris ferruginea* in Alaska. Page 27 *in* The annual cycle of the Curlew Sandpiper *Calidris ferruginea* (L. G. Underhill, P. S. Tomkovich, and J. A. Harrison, eds.). International Wader Studies 19.

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- Winker, K. 2005. [Review of] Handbook of the birds of the world, Vol. 8: Broadbills to tapaculos. Loon 77:114-115.

(Bold denotes our students)



Michael Lelevier, James Maley, and Matthew Miller mist netting in Panama. (photo by Peggy Guitton)

> University of Alaska Museum's Friends of Ornithology

The birds of Alaska have never been in better hands.