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# FRIENDS OF ORNITHOLOGY

## Newsletter

Number 3  
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Grus, The Crane (Willoughby & Ray 1678)



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### From the Curator

*Kevin Winker*

It's been another very active year in the Department of Ornithology. The University of Alaska Museum of the North has been under construction, but the expansion is still not finished. We've been integrating our normal duties with the jump and shuffle of moving, but the construction delays have made the process drag out over a longer period than anticipated.

Our group has expanded: Erin Carr came to work with us as an undergraduate and then as a postgraduate. Elizabeth Humphries joined us as a new graduate student, and Mike Lelevier also continued with us.

We discovered a new strength of the Bird Collection when we were engaged by the U.S. Fish & Wildlife Service to do some forensic work associated with an environmental incident in the state. (This case is in litigation and requires our confidentiality, so we cannot provide details at this time.) Last May, Dan Gibson and I traveled with Deborah Rocque of the USFWS to the institution's awe-inspiring Forensics Laboratory in Ashland, Oregon. There, Dr. Ed Espinoza, Dr. Pepper Trail and Dr. Dick Stroud gave us a warm welcome and spent the better part of two days with us showing how they perform forensic studies on animal remains and commercial products made from animals. A key asset in making morphological identifications of bird carcasses and pieces of birds is a strong comparative collection, and recently we learned new aspects of how important the UAM Bird Collection is for comparative purposes of this type. The skeleton collection proved to be especially useful, and we used it more heavily than it has been used to date. Our strong development of that collection continues to pay off.

The Society for the Study of Evolution held its

annual meeting in Fairbanks in June 2005, hosted locally by Kevin McCracken and many able students, staff, and other faculty. Our group's participation was strong in the scientific program, and the Museum and Bird Collection had many visitors during the meeting.

Support from The Friends remains an important basis from which we are able to do many things, especially to keep students active in the field.

### 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* (PhD student)  
*Carrie Topp* (MS student)  
*James Maley* (MS student)  
*Matthew Miller* (PhD student)  
*David Shaw* (MS student)  
*Elizabeth Humphries* (MS student)  
*Michael Lelevier* (undergraduate)  
*Erin Carr* (undergraduate, postgraduate)  
*Terra Abbott* (undergraduate)

#### Research Associates

*Heinrich Springer*  
*Johannes Erritzoe*  
*Rose A. Z. Meier*  
*Kevin McCracken*  
*Christin Pruett*  
*Peggy Guitton*

#### Volunteers

*Robert Dickerman*  
*David Sonneborn*  
*Steven Heintz*  
*Robert Wilson*  
*Andrew Johnson*

## ANNUAL REPORT - ORNITHOLOGY

FY05

During this year Department personnel and volunteers conducted 11 field expeditions. Eight of these trips were made to sample Alaska localities ranging from the Near Islands in the Aleutians to Cold Bay and Goodnews Bay. Other expeditions were made to Belize and Peru to sample resident and migratory birds. We continued working with the U.S. Department of Agriculture to screen birds for avian influenza and to determine pathways of migratory transport of this emerging disease. Our collecting, salvaging, and preparation efforts resulted in the cataloguing of 1,500 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 life in a construction zone, Winker beginning a term as Associate Editor for *The Auk*, and a surge in manuscript production. Our group made six presentations at the Evolution 2005 meeting, which was held here in Fairbanks; this represented a particularly strong showing by our students.

Volunteer hours	2,160
Acquisitions	1,500
Grants	5
Publications	6
Reports	17
Loans	10
Data requests	136
Professional visitors	40
Student visitors	32
Public contacts	300+

### Students working with collections

PhD	5
MS	4
Undergraduates	4

### FROM STAFF & STUDENTS

#### Daniel D. Gibson

For the last five or six years I have been working at great length on a monograph titled “Birds of the Aleutian Islands, Alaska,” where my co-author,



Bob Dickerman and Dan Gibson

Vernon Byrd, of the Alaska Maritime National Wildlife Refuge, and I have conducted fieldwork, separately and together, from the late 1960s to the present. With Olaus Murie’s (1959) “Fauna of the Aleutian Islands and Alaska Peninsula” as a foundation, we have now compiled and analyzed the information collected—from one end of the Aleutians to the other, at all seasons, by us and many others—and discuss in individual accounts the status, seasonal occurrence, distribution, and abundance of 297 species and subspecies of birds that have now been documented in the archipelago.

We discuss the history of bird study in the Aleutians, the taxonomic composition of the Aleutian avifauna and its proximate origins, seasonal movements, habitat use, timing of breeding and seasonal movements, and changes in habitats and bird populations. Finally, we include an inventory of archived avian specimens from the Aleutians (Appendix 1), references to archived or published (or both) documentary Aleutian photographs of selected species and subspecies (Appendix 2), a hypothetical list of species reported from but not substantiated in the Aleutians (Appendix 3), a gazetteer of Aleutian islands, and an index to the avian scientific and English names in the paper. There will be maps, tables, and many color photographs of Aleutian habitats and

localities.

After several years' correspondence with the editor of the AOU Monographs, in autumn 2005 we submitted our paper, and it is now in review. We have been pleased to learn that, because of circumstances of timing in combination with the length of our manuscript, "Birds of the Aleutian Islands, Alaska" is slated to be the first American Ornithologists' Union monograph published jointly with the Nuttall Ornithological Club (Museum of Comparative Zoology, Harvard University). We have been told it will be published in hard-cover as well as soft-cover editions, perhaps as early as summer 2006.

### **James Maley**

Greetings, Friends of Ornithology! I last wrote a piece for this newsletter several years ago before I began as a master's student, and it's time to update you on my subsequent progress. When I started as a volunteer in the bird lab in the spring of 2001, I could not have imagined what lay ahead for me as a beginning student in ornithology. Getting the opportunity to travel to Attu Island and southeast Alaska during my first summer as a student employee of the Department of Ornithology solidified my desire to pursue a career studying birds. After being the teaching assistant for Ornithology at the university in spring of 2002 and graduating with a bachelor of science degree, I found myself traveling to a variety of places around the state. I was fortunate to go on a trip surveying the birds of the Brook's Range and the North Slope, where I had my first experiences with Bluethroats and found a lek of approximately 50 Buff-breasted Sandpipers. I also realized that I have a penchant for finding rare birds, discovering a pair of Gadwall in Deadhorse and a Red-necked Sandpiper on Chandalar Shelf, a rare interior record for this Asian vagrant. I went on several other trips that summer, culminating in a trip to the Alaska Peninsula, extending the known breeding range of an Alaskan rarity, the Marbled Godwit. It was during this trip, which was a survey for the BLM using a helicopter, that Kevin offered me a position as a master's student. I eagerly accepted this opportunity to continue my studies of birds.

Kevin and I sat down to outline a project, and I chose to study McKay's Buntings, one of North America's rarest and Alaska's only endemic songbird. I knew how to sequence birds through my previous work on the Blue Grouse of southeast Alaska and the Queen Charlotte Islands, and it was through this work that I decided to pursue the field of evolutionary biology in the context of ornithology. The hitch was that I didn't want to abandon traditional taxonomy and museum-based work, but this project provided an opportunity to combine the two. My thesis has developed into a complex combination of these two ways to pursue evolutionary biology.

My first chapter is an analysis of the juvenal plumage of McKay's Buntings in relation to their congener, Snow Buntings. This study combines traditional taxonomy with modern museum techniques to provide "real" data for comparative purposes. Kevin and I assembled a large series of the two species and I used a machine called a light reflectance spectrophotometer. This machine analyzes plumage and provides actual numbers for plumage coloration and lightness. I then statistically analyzed the data and found that they were indeed different, especially relative to the difference between the two subspecies of Snow Buntings included in the study.

My second chapter is somewhat more complex, and very interesting. I used modern genetic techniques to uncover the level of differentiation between the two species and also to determine aspects of the two populations' histories. Based on my results, it would appear that McKay's Buntings split from Snow Buntings during the last ice age, indicating that they became isolated on St. Matthew Island and Hall Island (their current breeding range) only very recently. This recent split provides an opportunity to study speciation in high latitudes.

My third chapter is perhaps the most complex of all, but it is on the cutting edge of ornithology and evolutionary biology. With the recent completion of the chicken genome, we have a golden opportunity to study the mechanisms of

adaptation and evolution. We can target genes that are responsible for adaptations such as cold tolerance, plumage coloration, and many other basics of bird biology. For this part of my study I have included both species of buntings and their closest relatives, the longspurs. The genes I have sequenced suggest some exciting evidence for adaptation to cold environments.

As you can see, my ornithological studies are diverse. They range from taxonomic comparative and descriptive work, to uncovering evidence of arctic adaptation in birds using modern genetic techniques, and a variety of aspects in between. I have also been fortunate with respect to field work and travel in Alaska to directly observe birds. Some of my most memorable experiences have taken place in the past two years, as my understanding of avian systems grew. In 2004, when I was conducting another BLM survey in Goodnews



Bird survey crew, Unalakleet, July 2005

Bay, I explored a seabird colony on Beluga Hill that hadn't been described by previous survey work in the area. It was a phenomenal place, on the west side was a Bald Eagle nest, on the east side was a Golden Eagle nest, and above the colony there was a nesting pair of dark morph Rough-legged Hawks. In the colony there were thousands of pairs of Pelagic Cormorants, hundreds of Horned Puffins, scattered pairs of Pigeon Guillemots, Glaucous-winged Gulls, and a single pair of Common Ravens. I couldn't help feeling lucky as I climbed to the top of the colony and sat with my trusty chocolate lab Java, watching a family of fledgling Say's

Phoebes feeding along the upper margin. Sitting with my arm around my dog, looking at the Round Islands far to the south in the Bering Sea, on a warm July day, I knew I had chosen the right field of study.

Another trip that I took last fall has led me to where I am today. I went to Cold Bay, again with Java, for the last two weeks in October. I saw some amazing birds, never expecting to be in a place where I could see several Gyrfalcons every day, as well as hundreds of thousands of geese staging to leave. The Sharp-tailed Sandpipers made the hail and forty mile-per-hour winds bearable. As I packed to head back north on a cold Halloween evening I stepped outside to breath in the crisp evening air and get a last glimpse of the stunning volcanoes surrounding the town, suddenly I heard the unmistakable sound of Brant. I looked up in time to watch thousands of Brant heading south over the Pacific, on their nonstop flight destined for the Baja Peninsula. This amazing avian spectacle helped stir a desire to head where the Brant were going, to the unparalleled diversity of the Neotropics. So I am going to pack up my toolbox of ornithological skills and begin my PhD at Louisiana State University, shifting my focus toward the birds of South America. But I can never forget my experiences here in Alaska, and I hope to bring a fresh northern perspective to Neotropical bird study. None of these would be possible without Dr. Kevin Winker, the University of Alaska Museum, and the Friends of Ornithology. Thank you for stimulating my interest in ornithology and for the support at all levels that was available to start my career; and continue, as I have, to enjoy the amazing birdlife found here in Alaska.

#### **Erin Carr**

Last spring I graduated from UAF with a Bachelor of Science degree in wildlife biology. I plan on continuing my education and start a second degree within the next year. However, I wanted to take a year to decide which direction to take my biology degree. I narrowed my two options down to either a teacher's certificate or a Master of Science degree. This indecision is what brought me to the Bird Lab. I took

a student position in May with the Department of Ornithology preparing bird specimens for an education project. This position allowed me to continue in biology, but work closely with a local high-school science teacher developing a biology/evolution unit.

Over the past couple of years, Kevin, Dan Gibson, and the curatorial assistants have been holding onto a surplus of salvaged birds. These were mostly common species, with multiple prepared specimens already catalogued in the Museum. These salvaged birds were then labeled as education birds and awaited preparation. I was given the task of sifting through the salvaged birds and preparing each specimen. Specimen preparation for this project, however, was different from the usual. As if preparing bird specimens isn't odd enough (to someone who hasn't done it before), I was chopping off tails, feet, skulls, wings, and pulling feathers to preserve these pieces separately. This piecemeal approach did two things: it enabled direct comparisons of adaptive features of these parts among species, and it managed to get some use out of some very marginal bird carcasses that could not have been used for traditional specimens. But in addition to preserving pieces, I was also preparing full skins, which has become my preferred preparation technique.

I am currently writing species descriptions that will accompany the education teaching collection. These descriptions include the species' migration behavior, food preferences, and habitat type. This teaching collection will give high-school students a hands-on resource for learning biological, genetic, and evolutionary concepts. Students will be able to see and touch a prepared specimen and refer back to the species' description to learn aspects of adaptation, e.g., why particular features are present for a given species. This education project was the first of its kind here at the University of Alaska Museum. It benefits the Museum, high-school teachers, and perhaps most importantly high-school students. I appreciate having the opportunity to broaden my horizons.

### **Elizabeth Humphries**

I moved to Alaska from the East Coast this past summer. I grew up just outside of Washington, D.C., and I've rarely been outside of the mid-Atlantic region, so Alaska is quite a change. I remember thinking as I stepped off the plane that I had arrived in some sort of alternate universe; it's so *strange* to be surrounded by

spruce and birch trees instead of the oaks and maples of the deciduous forest I grew up around. And the birds! Many of the common birds here are very similar to the ones back home, just so much *bigger* and more exotic. The first time I saw a raven, I started jumping up and down in excitement. I'm still thrilled every time I see a Common Raven or hear a Bohemian Waxwing. I know that they're just as common here as American Crows and Cedar Waxwings are back East, but it's still very new for me. I've really enjoyed seeing so many western counterparts to the birds familiar to me.

I had always enjoyed watching birds, but my love affair really began the summer after my freshman year of college. I spent that summer at Patuxent Wildlife Research Refuge working with Whooping Cranes. We raised the chicks for either release into a non-migratory flock in Florida or to be trained to follow an ultralight aircraft on migration. My very first day there, I was washing water dishes when I heard a noise. I looked up and came face-to-face with a full grown whooping crane—luckily for me, we were separated by a fence. I stared at this bird that was just as tall (if not taller) as me and completely unconcerned by the fact that I was human; after about a minute, he very calmly ruffled his feathers and walked off. I was hooked. (It didn't hurt that Whooping Crane chicks are adorable.) After that summer, I continued working with birds, doing fieldwork in both the deciduous forests of Maryland and the tropical rain- and dry-forests of Mexico. All the birds were amazing (especially in Mexico), but my favorite was the Montezuma's Oropendola. There was a colony very near one of the nesting sites I was watching, and I have to admit that I often took longer than absolutely necessary to get to that nesting site because I was watching the oropendolas instead.

One of the reasons I was drawn to Alaska was its rather unique glacial history. During the last glacial cycles, part of Alaska formed a refugium for plants and animals. This refugium, known as Beringia, gave rise to many of the species of birds that are uniquely Alaskan, like Whiskered Auklets and Red-Legged Kittiwakes. My master's thesis

work deals with the genetic consequences of the Beringian refugium during the cycles of glaciation and melting. I've just begun, but the research is already fascinating and I can't wait to see how it turns out.



Preparing specimens in the old Bird Lab.

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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](http://www.uaf.edu/museum/bird)*

### One last note

One of the photographs above (page 5) reminded me that our four-year partnership with the Bureau of Land Management to conduct avifaunal surveys in various remote parts of the state has not been noted in the Newsletter before. These surveys are classic partnerships in every respect: BLM provides logistical and field support, and we provide the trained personnel. In each of these efforts we've worked closely with other departments in the Museum to formulate optimal on-the-ground plans for how to get people and gear into the most promising places for our respective surveys. Our focus is on the extensive landholdings of BLM in Alaska. Jeff Denton of the BLM has been a staunch instigator and supporter of this important work. Unlike the Lower 48, Alaska has never had a Biological Survey, so a lot remains to be discovered here.

In 2005 we worked out of Unalakleet and covered a remarkable amount of ground with the excellent helicopter support that BLM made available to us. What beautiful country! We found fewer Asian-wintering species than we were expecting, but learned a lot about this region in the process. A key member of our BLM surveys, and the only one who does not need to take helicopter safety training, is James's chocolate lab "Java." Never has a more tranquil helicopter dog been seen. And what an asset on the ground! In the photograph at left,

Java and James Maley enjoy some midnight sun fishing fun.



Java and James Maley.

### RECENT PUBLICATIONS (ANNOTATED)

\*Pruett, C. L., and K. Winker. 2005. Biological impacts of climatic change on a Beringian endemic: Cryptic refugia in the establishment and differentiation of the rock sandpiper (*Calidris ptilocnemis*). *Climatic Change* 68:219-240. *The importance of climatic change on the establishment and differentiation of high-latitude species is largely unknown. Using mtDNA sequence data, we recover the historic signal of the biological effects of climate change on the Rock Sandpiper (Calidris ptilocnemis). Rock and Purple sandpipers (C. ptil. and C. maritima) are sister species (with maritima being an Atlantic species), but the split is much older than the last glacial maximum. Rock Sandpipers show that there were multiple refugial populations in Beringia that correspond loosely to different glacial cycles. This species shows the establishment, persistence, and accumulation of genetic differentiation across several glacial cycles, implicating the presence of multiple cryptic biological refugia in this region through repeated cycles of climate change.*

\*Pruett, C. L., and K. Winker. 2005. Northwestern song sparrow populations show genetic effects of sequential colonization. *Molecular Ecology* 14:1421-1434. *The Song Sparrows (Melospiza melodia) of northwesternmost North America exhibit a long, almost linear distribution, and thus represent a natural vertebrate system of sequential colonization, particularly where their range extends out along the Alaska Peninsula and the archipelago of the Aleutian Islands. This system was probably colonized within the last 10,000 years, and there are morphological and behavioral differences in the western populations. Microsatellite loci from eight populations in Alaska and British Columbia (n = 205 individuals) showed a stepwise loss of genetic diversity, genetic evidence for strong population bottlenecks, and increased population divergence. These results show that sequential bottlenecks or founder events can have powerful genetic effects in reducing diversity, possibly leading to rapid evolutionary divergence.*

\*Benson, A.-M., and K. Winker. 2005. Fat deposition strategies among high-latitude passerine migrants. *Auk* 122:544-557. *Passerine migrants at a stopover site in interior Alaska do not appear to use local resources either to fatten for insurance against hard weather in spring or in preparation for autumn migration (16 species; N = 18,685 individuals). Instead, most fat deposition observed is correlated with local environmental variables such as overnight low temperatures and day length. Our data suggest that most of the energetic costs of long-distance migration in these taxa are paid with stopover resources obtained between the breeding and wintering ranges.*

Winker, K. 2005. Sibling species were first recognized by William Derham (1718). *Auk* 122:706-707.

Kulikova, I. V., S. V. Drovetski, D. D. Gibson, R. J. Harrigan, S. Rohwer, M. D. Sorenson, K. Winker, Y. N. Zhuravlev, and K. G. McCracken. 2005. Phylogeography of the Mallard (*Anas platyrhynchos*): Geographically variable hybridization and lineage sorting cause genetic structure and mixing. *Auk* 122:949-965. *Population genetics of Mallards (Anas platyrhynchos; N = 152; 667 bp of mtDNA) from western Russia, north Asia, the Aleutian Islands, and mainland Alaska revealed two clades: Group A haplotypes (80.3%) were widespread from western Russia to Alaska. Group B haplotypes (19.7%) were found primarily on mainland Alaska, where they occurred at high frequency (77.4%), but declined in frequency from east to west in the Aleutian Islands (11.8%) and the Primorye region of North Asia (4.4%). Substantial genetic structure was evident between the Old World and New World but not within the Old World continental area. Aleutian Islands populations may be isolated from Asian and North American populations.*

Winker, K. 2005. Bird collections: Development and use of a scientific resource. *Auk* 122:966-971.

\*Rocque, D. A., and K. Winker. 2005. The use of bird collections in contaminant and stable isotope studies. *Auk* 122:990-994.

Hinzman, L. D., N. Bettez, W. R. Bolton, F. S. Chapin, M. Dyurgerov, C. Fastie, B. Griffith, R. D. Hollister, A. Hope, H. P. Huntington, A. Jensen, G.J. Jia, T. Jorgenson, D. L. Kane, D. R. Klein, G. Kofinas, A. Lynch, A. Lloyd, A. D. McGuire, F. Nelson, W. C. Oechel, T. Osterkamp, C. Racine, V. Romanovsky, R. Stone, D. Stow, M. Sturm, C. E. Tweedie, G. Vourlitis, M. Walker, D. Walker, P. J. Webber, J. Welker, K. Winker, K. Yoshikawa. 2005. Evidence and implications of recent climate change in northern Alaska and other Arctic regions. *Climatic Change* 72:251-298. *We present a broad array of evidence to provide a convincing case of change in the arctic climate and a system-wide response of terrestrial processes.*

Spackman, E., D. E. Stallknecht, R. D. Slemons, K. Winker, D. L. Suarez, M. Scott, and D. E. Swayne. 2005. Phylogenetic analyses of type A influenza genes in natural reservoir species in North America reveals genetic variation. *Virus Research* 114:89-100. *Phylogenetic analyses of sequence data from five avian influenza genes isolated from natural hosts across North America from 1969 to 2003 show a remarkable failure for AI*



Wrapping things up in the old Bird Lab.

*lineages to assort geographically, temporally, or to host taxon within the natural host reservoir of waterfowl and shorebirds on this continent. This lack of grouping may preclude the development of a useful epidemiological understanding of avian influenza in wild waterfowl and shorebirds.*

Burg, T. M., A. J. Gaston, K. Winker, and V. L. Friesen. 2005. Rapid divergence and post-glacial colonization in western North American Steller's jays (*Cyanocitta stelleri*). *Molecular Ecology* 14:3745-3755. *Population genetics of eight populations of Steller's Jay (N = 150; 5 microsatellite loci) from northwestern North America revealed rather high levels of structure. The endemic Queen Charlotte Islands subspecies C. s. carlottae was genetically the most differentiated of the sampled populations, and this may indicate that this population persisted through the last glacial maximum in a refugium on or near these islands. Mainland populations also exhibited substantial genetic differentiation, suggesting rather rapid divergence following their colonization of the region after glacial retreat.*

(\* Asterisks denote our students)

If you are interested in reading these papers, most can be found on our web site (Winker's CV site)

University of Alaska Museum's  
*Friends of Ornithology*

*The birds of Alaska have never been in better hands.*