
FRIENDS OF ORNITHOLOGY

Newsletter

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Grus, The Crane (Willughby & Ray 1678)



From the Curator

Kevin Winker

Winter is here again in the Far North, and the state of Alaska is still in a recession and a budget crisis. There is no sense of optimism that we're going to be seeing either of these change soon. The state budget has been repeatedly cut (by over 40% since 2014), and the incoming administration is looking for ways to cut it further. We're hanging on here at the university and the museum, but across our landscape the erosion is becoming severe and noticeable. When we eventually touch bottom, it will likely be a long climb back as an institution. But, gloom and doom aside, we are still here in the trenches doing the things we do and doing them well.

In addition to our normal activities in collections, teaching, and research this year, we were deeply engaged with two externally funded projects: archiving seabird specimens from the *Selendang Ayu* ship accident and oil spill, and using genomics tools to study the movements of avian influenza vectors between Asia and North America. It is fun to have such different projects going simultaneously—it highlights just how multi-dimensional the contributions of specimen collections can be. Both of these projects heavily involved undergraduate students.

Several of us were also active in the field, and this newsletter issue includes a synopsis of one rare and particularly important effort. As climate change continues to occur up here, we are seeking more opportunities to lay in samples through time so that long-term effects can be measured and understood. The bird collection itself is being more heavily used to

answer these questions, so we're working to make it a better resource for the diverse scientific questions being asked of it.

The Department of Ornithology

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

Residents

Kevin Winker (Curator)

Jack J. Withrow (Collections Manager)

Students

Fern R. Spaulding

Jessica L. Herzog

Elise Stacy

Abigail Blackstone

Shelby McCabon

Symcha Gillette

Research Affiliates

Daniel D. Gibson

Johannes Erritzoe

Rose A. Z. Meier

Kevin G. McCracken

Christin L. Pruett

Kyle K. Campbell

Volunteers

David W. Sonneborn

Lucas H. DeCicco

Jessica McLaughlin

Fern Spaulding

Chris Maack

Tait Chandler

Jenna Te Jenn Lundfeldt

Aasne Hoveid

Bailey Carter

A SAMPLING FROM STAFF

Jack Withrow

Three weeks in the Bering Sea: resampling St. Paul and St. Matthew islands.

Our program is largely focused on the bird life of Beringia. The Pribilof Islands and the St. Matthew group lie at the heart of this area and are particularly interesting from an avian biogeography standpoint. They also host large seabird colonies. These islands are therefore important sampling sites for us. Despite their importance, access can be difficult, particularly to the uninhabited St. Matthew group, 225 miles north of the Pribilof Islands (arguably the most remote place in Alaska; see Rozell 2012). Much of the Pribilof Islands, and all of the St. Matthew group, are part of the Alaska Maritime National Wildlife Refuge and their ship the *Tiglax* has made periodic visits to St. Matthew Island over the last several decades. These trips usually include a multi-disciplinary team of scientists conducting research on everything from pre-historic occupation to geology and plant life (e.g., Romano et al. 2013). The focal goal of the refuge's 2018 visit was to re-census the breeding population of McKay's Buntings and Rock Sandpipers on St. Matthew Island 15 years after initial modern surveys (see Matsuoku and Johnson 2008, Ruthrauff et al. 2012). I was fortunate to obtain a berth on the 2018 trip to resample the islands' birds 16 and 21 years after our last visits to the island. This not only represents a phenomenal opportunity to obtain samples through time to measure changes on decadal scales, but archiving bird specimens is part and parcel of effective, comprehensive avian conservation and management. In the Arctic in particular we need to be doing more of this (Winker and Withrow 2017).

In 1997 Winker visited St. Matthew Island for eight days in July and collected the first modern (defined here as the preservation of tissues, skeletons, and stomachs in addition to study skins) bird material from St. Matthew. Deb Rocque, a graduate student at UAF and the museum, visited in 2002, again for eight days in late July. Prior to these visits probably less than 200 specimens existed from St. Matthew Island (data from VertNet), and except for George Hanna's work in 1916, most of these were collected almost incidentally



Figure 1. The view from the top of Bull Seal Point looking north towards Glory of Russia Cape, St. Matthew Island, 8 June 2018. Photo by J. J. Withrow.

on brief stops while ships transited the Bering Sea, including stops by the Harriman Alaska Expedition and Arthur Cleveland Bent (see summary in Winker et al. 2002). This year our goals were to recreate and extend those sampling efforts and start to build a time series through which change can be assessed. The timing of this trip in early June and the ready availability of a freezer for much of it greatly increased the quantity and quality of the material we were able to preserve (previous trips in July preserved birds at the height of plumage wear, and were salted or pickled in the field, with buffered, not frozen tissues).

Over the course of 16 days I walked about 200 miles over St. Paul, St. Matthew, and Hall islands (Figures 1 and 2), collecting population-level samples of the common breeding land birds (Snow and McKay's buntings, Lapland Longspurs, Gray-crowned Rosy-Finches, and Rock Sandpipers). These five species, all abundant on the islands, represent about 80% of the birds collected on this trip. Past snapshots of these species had sometimes been incomplete. For example, before this trip fewer than half a dozen adult Gray-crowned Rosy-Finch specimens existed from St. Matthew, only one of which had an archived tissue. Their abundance on St. Matthew appears to fluctuate, and they may be non-migratory. They were encountered regularly this trip, and a good series was taken which will allow us to assess their distinctiveness in relation to the Pribilof Islands and other populations in southwest Alaska. However, we practice general, place-based sampling, and many other species were sampled as well. For example, three *Phylloscopus* warblers collected on Hall Island



Figure 2. The view from the top of Hall Island, looking south across Sarichef Strait at Glory of Russia Cape (left) on St. Matthew Island, 10 June 2018. Photo J. J. Withrow.

were presumed to be Kamchatka Leaf Warblers, but one individual is particularly small billed (see Withrow et al. 2016), and molecular confirmation of the identifications are being conducted by mtDNA barcoding. Bryce Robison, another trip participant, is leading the work of summarizing the new observations arising from this trip, extending the summary of Winker et al. (2002) and the update of Johnson et al. (2004). Stay tuned for the many new distributional and breeding records that will be outlined there.

McKay's Bunting (originally named McKay's Snowflake; Figure 3) is the highest-latitude endemic passerine, breeding only in the St. Matthew group. As such, it and its sister taxon the Snow Bunting (breeding as close as St. Paul and Nunivak islands) are a particularly interesting system in which to explore the dynamics of population divergence within Beringia. Resampling this endemic population was high on our priority list during this trip. We have previously looked at population divergence in these birds using less-powerful genetic techniques (Maley and Winker 2010) and juvenal plumage (Maley and Winker 2007). With the development of "next-generation" sequencing techniques, our ability to generate enormous datasets looking at millions of base pairs of DNA sequence will enable us to refine our understanding of the genetic signature of isolation or lack thereof (gene flow), and

long-term demographic parameters (e.g., population size) in these birds. In the case of McKay's Buntings it appears that they may be, or have recently been, exchanging genes with Snow Buntings at a significant rate (see Winker et al. 2018). This new population-level sample will enable us to refine our understanding of this and perhaps look at changes in this dynamic over time. Perhaps McKay's Bunting is a snowflake in a blizzard.



Figure 3. A plate from Townsend's (1887) contribution to the report of the revenue cutter *Corwin* in which he described the breeding grounds of McKay's Buntings for the first time. The plate was given to him by Robert Ridgway and was drawn by his brother John Ridgway from the spring syntypes of *Plectrophenax hyperboreus* (USNM 78551 and 78556) collected by E. W. Nelson at St. Michael's, Alaska in April 1879.

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Symcha Gillette

(Undergraduate student assistant)

I began working in the ornithology lab as a student assistant in January 2018. My only experience working with birds up to that point was as a high school intern with the Alaska Songbird Institute, helping with the Swallow Ecology Project. When I was still very new to the bird lab, I was sitting there one day poking around awkwardly inside a Long-tailed Duck. Kevin Winker walked in and asked “So, what do you think of the inside of a bird?” to which I responded, “It’s a big mess!” Kevin appeared slightly dismayed at this and quickly put things into perspective: “An elephant’s insides are what you’d call a big mess!” That was well over

100 birds ago, and I can say I would now answer that question quite differently. Specimen preparation has long since lost its initial strangeness, and although it is now a routine part of my week, it is far from a boring one. I learn something new about birds with just about every specimen.

I have enjoyed learning how to prepare birds as study skins and about how avian collections are used. It is very satisfying to take a bird and preserve it in a way that enables it to contribute to science for many years to come. It's also entertaining to answer questions about what I do for work with "I skin birds." After the necessary explaining has been done, I let people know they can bring any dead birds they find to the museum to add to the collection.

In addition to helping to add specimens to the collection, I am also learning about and participating in the research that museum collections support. I have been learning about bioinformatics and how to use various software tools to analyze genetic data. Specifically, I have been introduced to methods that analyze genetic loci containing ultraconserved elements (UCEs) to learn about avian population genomics. These methods enable us to subsample the genome and compare the same subset of thousands of loci across species. I am currently using these methods to study two subspecies of Mew Gull, *Larus canus kamtschatschensis* and *L. c. brachyrhynchus*, which have been suggested to be separate species in the past. This research was made possible by the museum's frozen tissue collection, which provided the necessary genetic material.

I feel fortunate to have landed such a cool job. Not only has my work in the bird lab given me a heightened appreciation for birds, but it is also providing me with experience and skills that are useful for someone preparing for a career in the life sciences.

ANNUAL REPORT - ORNITHOLOGY, FY18

Our project to archive the bird specimens salvaged from the *Selendang Ayu* oil spill made great strides this year, thanks to our undergraduate collections assistants. This project was funded by the North Pacific Research Board. We've already received a request to use some of this material. The collection grew by 1,100 specimens and continues to support a lot of science; its *b-*

index is up to 61 (this is a measure of the importance of the science produced using it).

Fieldwork this year included trips to the Alaska Range, Kodiak, the Bering Sea (St. Paul, St. Matthew, and Hall islands), and the upper Susitna River. Eleven students worked with us in the collection this year, in addition to those using the collection for various research projects not overseen by us. Department staff, students, and research associates produced six publications and gave presentations at national meetings. Thanks as ever to our students, volunteers, and the Friends of Ornithology for their ongoing support.

Volunteer hours	677
Acquisitions	1,100
Publications	6
Reports	11
Loans	17
Data requests	217*
Professional visitors	34
Student visitors	20
Public contacts	~100**

Students working with collections

PhD	10
MS	2
Undergrad	10

* Excludes 13,284 electronic database requests downloading >71 million records.

** Excludes Halloween (794) and Open House (507) events.

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or point them to our web page:*

www.universityofalaskamuseumbirds.org

RECENT PUBLICATIONS

(FY18)

(**Bold** denotes our students)

AOU Committee on Classification and Nomenclature (one of 11 members). 2017. Fifty-eighth supplement to the American Ornithologists' Union Check-list of North American Birds. *Auk* 134:751-773.

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University of Alaska Museum's

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The birds of Alaska have never been in better hands.
