



UNIVERSITY OF ALASKA

MUSEUM OF THE NORTH

FY2015

ANNUAL REPORT



86,960
total attendance

121,777
new database entries

57,040
new specimens

358
new accessions

211
outgoing loans

MUSEUM PROFESSIONAL STAFF

Aldona Jonaitis, Museum Director

ADMINISTRATION

Barbara Ellanna, Fiscal Professional
Emilie Nelson, Executive Assistant
Linda Sheldon, Fiscal Technician

ALASKA CENTER FOR DOCUMENTARY FILM

Leonard Kamerling, Curator*

ARCHAEOLOGY

Joshua Reuther, Curator*
Scott Shirar, Collection Manager
Sam Coffman, Research Archaeologist
Fawn Carter, Assistant Collection Manager

COMMUNICATIONS & MARKETING

Theresa Bakker, Manager

EARTH SCIENCES

Patrick Druckenmiller, Curator*
Julie Rousseau, Collection Manager
Katherine Anderson, Collection Manager

EDUCATION & PUBLIC PROGRAMS

Jennifer Arseneau, Manager
Maïté Agopian, Public Programs Coordinator
Peggy Hetman, School & Community Liaison
Gabrielle Vance, Educator

ENTOMOLOGY

Derek Sikes, Curator*

ETHNOLOGY AND HISTORY

Molly Lee, Curator Emerita *
Angela Linn, Senior Collection Manager

EXHIBITS, DESIGN, & DIGITAL MEDIA

Roger Topp, Head of Production
Steve Bouta, Exhibitions & Design Coordinator
Tamara Martz, Exhibit & Graphic Designer
Jonah Wright, Assistant Preparator
Hannah Foss, Modeler/Animator
Kelsey Gobroski, Digital Media Producer

GENOMIC RESOURCES

Kyndall Hildebrandt, Collection Manager

FINE ARTS

Mareca Guthrie, Curator*

HERBARIUM

Steffi Ickert-Bond, Curator*
Jordan Metzgar, Collection Manager
Dave F. Murray, Curator Emeritus
Carolyn Parker, Research Professional

FISH & MARINE INVERTEBRATES

Andres Lopez, Curator*

MAMMALOGY

Link Olson, Curator*
Aren Gunderson, Collection Manager
Dusty McDonald, Programmer

OPERATIONS

Kevin May, Manager

ORNITHOLOGY

Kevin Winker, Curator*
Jack Withrow, Collection Manager

VISITOR SERVICES

Daniel David, Manager & Retail Operations
Janet Thompson, Tour Planning and Event Rentals
Jake Sirevaag, Supervisor
Marcus Avugiak, Supervisor

* UAF faculty holding joint appointment

MUSEUM ADVISORY COUNCIL

Linda Anderson
Bill Bailey
Mike Cook
Jennifer Imus
Jim Lund
Drena McIntyre
Sherry Modrow
Jay Ramras
Renee Staley
Nicole Stewart
Joseph Usibelli
Nadine Winters, Chair
Kesler Woodward

FRIENDS OF THE UA MUSEUM

Mary Binkley
DeLois Burggraf
Roger Burggraf
Phyllis Church
Susie Crevensten
Donna Dinsmore
Tim Doran
Don Gray
Ron Inouye
David Norton
Lee O'Hare
Vicki Roy



MISSION

The University of Alaska Museum of the North, located on the Fairbanks campus, is the only museum in the state with a tripartite mission of research, teaching and collecting. The museum's botanical, geological, zoological, and cultural collections, primarily from Alaska and the Circumpolar North, form the basis for understanding the local as well as the global past, present and future. Through collection-based research, teaching and public programs, the museum shares its knowledge and collections with local, national and international audiences of all ages and backgrounds.

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Museum Director: Aldona Jonaitis
Editor: Theresa Bakker
Designer: Tamara Martz
Layout: Nathan Feemster
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FRONT COVER: A visitor enjoys the view of the Alaska Range next to the sculpture *Talauti* by Jon Bohning on a sunny summer day. Photo by Theresa Bakker.

FOLLOWING PAGE: The setting sun provides a dramatic background for the banners promoting the museum's exhibit, *Arctic Odyssey*. Photo by Theresa Bakker.



The University of Alaska Fairbanks is accredited by the Northwest Commission on Colleges and Universities. UAF is an affirmative action/equal opportunity employer and educational institution.



The University of Alaska Museum of the North is accredited by the American Alliance of Museums.

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FY15 Overview	Public Outreach	Research & Collections	Selected Publications	Development & Membership	Communications & Marketing	Gifts to the Collections	Donors of Record	Financial Summary	Grants & Contracts
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Director's Report from Aldona Jonaitis

I've been thinking about how today's University of Alaska Museum of the North compares to the natural history research museums of the 1980s when the first phase of our building was constructed. Certain features — exhibits, cataloged collections, and public education — have remained, along with the curators who engage in fieldwork to acquire new collections and conduct research.

What is not the same is the modern museum's attitude towards the public. In the past, curators rarely interacted with museum visitors and field research was conducted without heed to those who might be affected. Today we embrace the public in a number of ways.

During this fiscal year, we welcomed visitors to several free events, including our annual Halloween celebration and the community's New Year's Eve Sparktacular. The Alaska Center for Documentary Film offered workshops on preserving films and photographs. Curators and staff participated in several adult education courses. We presented the exhibit, Key Ingredients, at the UAF Community and Technical College in downtown Fairbanks. Alaska Native people visited the collections, some discovering cultural treasures from their communities returned to the state and cared for by this museum.

An important part of our public mission is enhancing K-12 education. Our docent programs actively engage local school children in hands-on learning. Our special exhibits include interactive elements designed for people of all ages, inspiring learning by doing rather than just reading. We also invited educators from the Yukon-Koyukuk school district to the museum through the Alaska Science Literacy Project to discover how to integrate botanical research into their classes. The fine arts department participated in Colors of Nature, an NSF-funded project which uses art to inspire an interest in science among adolescent girls. And the archaeology department included high school students on several digs.

At UAMN, we are proud of the students we have trained, our rapidly expanding collections, the widespread use of the Arctos database, and the discoveries of many new specimens and artifacts. By focusing on collections, research, and teaching activities, the museum's curatorial staff contributed enormously to our scientific and cultural understanding of this state and the circumpolar region.

Over the next few years, as we redesign the 35-year-old Gallery of Alaska, we will integrate our public orientation with new knowledge resulting from university research. We will include the public as we discover what visitors would like to learn about the natural and cultural history of Alaska and work with residents to present first-person narratives about their experiences in the Great Land. We will complement this community focus with the most recent discoveries. The new gallery will serve as a revealing demonstration of how different today's museum practices are from those of 1980s. It will be a splendid addition to our already outstanding museum.



MUSEUM DISCOVERY Series



A series of free talks in the spring of 2015 helped to share museum discoveries with the public. Curators discussed collections research and guests had the opportunity to see specimens and participate in activities prior to the talks.

Thursday, January 22

UNVEILING ALASKA DINOSAURS:

Discoveries and Insights into Ancient Life in the Arctic

Pat Druckenmiller

Curator of Earth Sciences

Thursday, February 5

ALASKA'S MARMOTS:

Known Knowns and Unknown Knowns

Link Olson

Curator of Mammals

Thursday, March 12

ALASKA'S BUTTERFLIES, BEETLES AND BEES

Documenting the Biodiversity of the North

Derek Sikes

Curator of Entomology

Thursday, April 23

CLIMATE CHANGE AND HUMAN LAND USE IN ICE AGE ALASKA

Josh Reuther

Curator of Archaeology

Ben Potter

Associate Anthropology Professor

2014

JULY

Bug Camp



AUGUST

UAF Day at the Fair
Key Ingredients filming

SEPTEMBER

Docent Training
Educators' Night
West Entrance Opens

OCTOBER

Key Ingredients Opens
Family Day: Food
Homeschool Day
Halloween



2015

JANUARY

Sparktacular
Arctic Currents
Premieres
Museum Discovery
Series: DINOSAURS
Open House

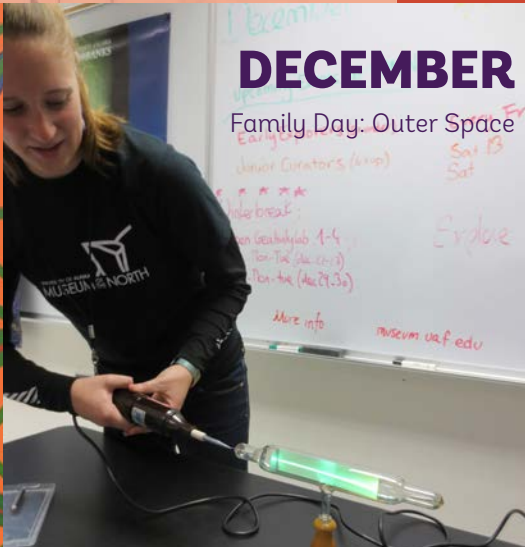


FEBRUARY

Museum Discovery
Series: MARMOTS
Family Day: Mammals
Museum Sleepover

NOVEMBER

Family Day:
Ocean Exploration
Chefs at the Museum
Vogel 50X50 Opens



DECEMBER

Family Day: Outer Space
Early Childhood
Junior Curators (Ages 1-4)
Breakfast: 10-12 (Ages 1-4)
Tea-Talk (Ages 1-4)
Tea-Talk (Ages 1-4)
More info: museum.uaf.edu

MARCH

Museum Film Series
Museum Discovery
Series: ALASKA'S
INSECTS
Family Day: Art

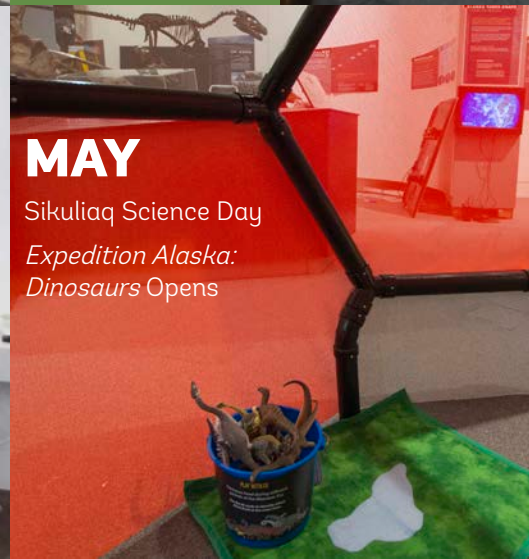


APRIL

Museum Discovery Series:
ICE AGE ALASKA
Family Day: Archaeology

MAY

Sikuliaq Science Day
Expedition Alaska:
Dinosaurs Opens



JUNE

Archaeology Camp





Education and Public Programs

Education and Public Programs

The UAMN education and public programs team develops programs, events, and resources to help children and adults engage with museum collections and research. It was an exciting year and we thank you for sharing it with us!

SCHOOL PROGRAMS

Serving Students

Field trips allow kids from the entire community to experience the museum. More than 2,400 students attended a field trip at the museum during this fiscal year. Directed Discovery field trips are guided by volunteer docents and allotted to local schools based on enrollment. 1561 students participated in a themed Directed Discovery. Thanks to Flint Hills Resources Alaska, no admission was charged to these students. Exhibit Exploration field trips are guided by teachers. 932 students attended an Exhibit Exploration. Homeschool students and their parent educators were invited to our 7th annual Homeschool Day. 185 people attended the day of activities and exploration, free of charge thanks to support from Flint Hills Resources Alaska.

1,561
students

Fall/Spring

**DIRECTED DISCOVERY
FIELD TRIPS**

72 programs

Free thanks to Flint Hills
Resources Alaska

932
students

Fall/Spring

**EXHIBIT EXPLORATION
FIELD TRIPS**

42 groups

185
attendees

October 13, 2014

HOMESCHOOL DAY

Sponsored by Flint Hills
Resources Alaska.



VOLUNTEERS MAKE IT WORK

Museum docents come from a variety of backgrounds but all share a love of learning. Docents dedicate one morning a week to guide field trips at the museum. Many docents return year after year. Longevity awards are given to recognize their service. Four docents received an award this year.

Charley Basham and **Tish Perkins** were given the Fireweed Award for three years - or six semesters - of service, and **Maggie Billington** and **Pat Cariati** earned the Birch Award for ten 10 years or 20 semesters.



FY15 DOCENTS

1,499
Volunteer Hours

Charley Basham
Lynn Basham
Maggie Billington
Pat Cariati
Tim Doran
Judy Ferri

Barb Gorman
Yuki Kawano
Helyn Lefgren
Richard McDonald
Gretchen Murphy
Tish Perkins

Sue Sherif
Leslie Swenson
Janet Taylor
Avalon Wappett
Mary Wentzel

ABOVE: Docents Maggie Billington and Pat Cariati have served students at the museum for 10 years. Photo by Jennifer Arseneau.

PREVIOUS PAGE: Educator Gabrielle Vance shares a story during the museum sleepover. Photo by Maité Agopian.

Education and Public Programs



LEFT TO RIGHT: Peggy Hetman thanks local teachers at the Greater Fairbanks Chamber of Commerce positive picketing event. Photo by Theresa Bakker. A young guest enjoys healthy treats during Lights On Afterschool.

Photo by Gabrielle Vance.

HANDS ON CLASSROOMS

Educators continue to express their appreciation for the way museum kits can enrich their lessons. Kit loans allow teachers to bring real specimens and objects into the classroom providing students with a rich opportunity for hands on learning. More than 25 kits have been developed.

43

kit loans

FY15 Teaching Collection Statistics

164

items cataloged in FY15

2,296

total objects in database

Sharing the Joy of Science

The museum hosted teachers from six different districts in November during an Alaska Science Literacy Project workshop organized by the Yukon-Koyukuk School District. Twelve teachers participated and learned about museum kits and resources, toured labs, engaged in activities and took home plant presses to use in their classrooms.

Serving Teachers

Our Educators' Night has become an annual tradition. In its fourth year, we welcomed new teachers to the museum and shared resources, showcased kits, and connected them with UAF outreach. We provided refreshments and encouraged exploration of exhibits, including *Arctic Odyssey: Voyages of the R/V Sikuliaq*; a total of 57 educators from across the district attended.

Lights On Afterschool!

UAMN was awarded funding to develop a partnership with Alaska 4-H and to host a free event for families during afterschool hours. This evening of family fun celebrated after school programs and community learning. Families were invited to celebrate healthy living. They explored the museum, enjoyed snacks, watched break dancing, and participated in a wide array of science and art activities. The event was free of charge. Ties were made to the *Key Ingredients* exhibit and connections to local food and healthy eating.

2014

August

UAF Day at the Tanana Valley State Fair
Positive Picketing Event for FNSB School District
Monthly film screenings of *Herb & Dorothy* begin



October

OLLI Class: Dive into Ocean Science
Key Ingredients First Friday at CTC Downtown Center
Food Family Day
Homeschool Day
Lights On Afterschool!
Museum Halloween



December

Outer Space Family Day
Coventry Carolers Performance
Open Creativity Lab



September

Military/4H Sleepover
Best Beginnings Family Health Fair at Pioneer Park
Science Night in Valdez
Docent Training
Event Volunteer Training
Educators' Night

November

Ocean Exploration Family Day
Teacher Workshop: Alaska Science Literacy Project
Chefs at the Museum



2015

January

Sparktacular
Docent Training
Ocean Art Program at the Noel Wien Library
Arctic Currents Film Screening
Discovery Series: Dinosaurs
Open House
Arctic Whales Program at the Noel Wien Library



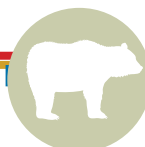
March

Tracing Roots Outreach in FNSB School District
Tracing Roots Film Screening
Kids' Art Workshop: Colors & Textures
OLLI Class: Science of Museum Collections
Drums of Winter Screening
Discovery Series: Insects
Workshop: Snow Drawing at the UAF Farm
Art Family Day



February

Science for Alaska Lecture Outreach at the Westmark
STEM Night Activity at Pearl Creek Elementary
Discovery Series: Marmots
Mammals Family Day
Science Night Film & Activity at Anne Wien Elementary
Walrus Program at the Noel Wien Library



April

Mush for Kids at Pioneer Park
UAF Science Potpourri at Reichardt Building
Earth Day Fair at Fort Wainwright
Artist Talk: Richard Tuttle, Vogel 50x50
Discovery Series: Archaeology
Community Science Night in Nome
Archaeology Family Day



May

Migration Celebration at Creamer's Field
Sikuliaq Science Day



June

Archaeology Summer Camp



School Field Trips

Early Explorers and Junior Curator Programs

Birthday Parties

Photos by Maité Agopian and Gabrielle Vance.

Education and Public Programs



COMMUNITY PROGRAMS

Lifelong Learners Dive In

Education & Public Programs coordinated two courses for the Osher Lifelong Learning Institute this year. The first focused on ocean science and tied to the special exhibit, *Arctic Odyssey: Voyages of the R/V Sikuliaq*. UAF researchers presented about their work. For the second class about the science of museum collections, we tapped into our own curators and collections managers. Each week featured a different collection and affiliated research. Students toured labs and collections areas, heard from curators, and participated in hands-on activities like specimen labeling, fossil prep, and DNA extraction.

Art Workshops

A series of art workshops for kids and adults, along with special topic workshops, offered participants in depth opportunities to learn and create. Public Program Coordinator **Maité Agopian** led a series of workshops inspired by the Vogel 50x50 exhibit. Film Curator **Len Kamerling** shared strategies for preserving family photos and films. We partnered with Denali National Park to work with artist-in-residence Sonja Hinrichsen to create large scale art in the snowy UAF farm fields below the museum.

TOP TO BOTTOM: A young artist displays his creation at an art workshop. Photo by Maité Agopian. Earth Sciences Curator Pat Druckenmiller shows OLLI students how to prepare fossils. Photo by Jennifer Arseneau. Cups decorated at a museum Family Day were shrunk at sea aboard the Sikuliaq. Photo by Theresa Bakker.

Special Events

Several annual events at the museum have become a part of the seasonal round for locals. Open House, Halloween at the Museum, and Sparktacular are free events that draw large crowds. In addition to those, we hosted a number of new events this year. We partnered with the Space Foundation for an Audience with an Astronaut event. In conjunction with the UAF School of Fisheries and Ocean Sciences, we hosted a Sikuliaq Science Day. During school breaks, we offered open creativity lab and a performance by the Coventry Carolers.

Film Screenings

The UAMN film, *Arctic Currents: A Year in the Life of a Bowhead Whale*, premiered this year. Screenings were held around the state including in the museum's auditorium and at an outreach event at Noel Wien library. Curator of Film **Len Kamerling** hosted screenings of the newly restored *Drums of Winter*, including a debut in Davis Concert Hall and showings in our auditorium during the UAF Festival of Native Arts. In conjunction with the *Vogel 50x50* special exhibit, free screenings of *Herb & Dorothy* were held each month from December through March. Filmmaker Ellen Frankenstein visited Fairbanks to show her new film *Tracing Roots* in our auditorium. We also brought Frankenstein and her film to Star of the North Charter School in North Pole, Effie Kokrine Charter School in Fairbanks, and to a UAF Film class.

Education and Public Programs



Summer Camps

The Creativity Lab became home to many summer day campers participating in UAF Summer Sessions camps led by UAMN curators and collections staff. This fiscal year, we hosted Archaeology Summer Camp in June 2015.

Family Programs

We continued to offer opportunities for families to enjoy a museum experience together. The Early Explorers drop in program for children five and under and their caregivers took place each Friday between October and May. During the same period, Junior Curator programs occurred two Saturdays a month for kids six and up. 769 participants attended these programs. Monthly programming themes included Food, Oceans, Earth Sciences, Outer Space, Mammals, Art, Archaeology, and Flight.

Birthdays at UAMN

A new offering this year was birthday parties for children five to 11 years old. They picked a theme for a two-hour long experience. A museum educator leads 90 minutes of discoveries, museum exploration, and hands-on activities. Parties close with time for guests to celebrate as they choose (cake and presents).

Museum After Dark

In addition to our annual sleepover, we partnered with Alaska 4-H to this year to offer a museum sleepover for military families. Both events found parents and kids engaging in scavenger hunts, partaking in crafts and games, snoozing in the Gallery of Alaska, and warming up with morning yoga and breakfast. We look forward to continuing this new tradition!

- **Military/4H Sleepover**, September 9, 2014.
25 attendees
- **Museum Sleepover**, February 20, 2015.
57 attendees



CLOCKWISE FROM TOP: The museum is a great setting for birthday parties. Photo by Gabrielle Vance. Kids excavate bones during a Dino Dig-themed birthday party. Photo by Tamara Martz. Sleepover guests gather for a group photo. Photo by Candi Dierenfield.

Bringing the Museum To You

Our off-site outreach events doubled this year. We were proud to again offer community awards at the Interior Alaska District Science Fair. We also continued to partner with the Noel Wien and North Pole Public Libraries to offer museum family passes for check out.



Education and Public Programs



PLAY AND LEARN TOGETHER

UAMN Family Days allow the whole family to connect with museum research and collections. Children and adults are invited to create crafts, try out science experiments and cultural activities, ask the experts, and explore galleries.

Kids 14 and under are admitted free for Family Days, sponsored by



342
attendees

FOOD family day

October 11, 2014

Adults and kids alike learned about edible plants, created crafts, and compared teeth from the mammal collection.

In collaboration with UAMN Mammals, UAMN Herbarium, UAF Healthy Living Program, UAF Cooperative Extension Service, Calypso Farm, and the Fairbanks Children's Museum.



372
attendees

OCEAN EXPLORATION family day

November 8, 2014

Kids touched live sea invertebrates, met marine scientists, and explored bioluminescence.

In collaboration with UAMN Aquatics and UAF School of Fisheries and Ocean Sciences.

OUTER SPACE family day

December 6, 2014

Guests visited UAF's portable planetarium, discovered magnetism and electricity, and created robots.

In collaboration with UAF Geophysical Institute and NASA Robotics Program.



286
attendees

MAMMALS family day

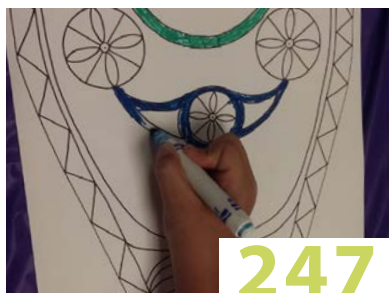
February 7, 2015

Discovering rodents, seeing specimens, comparing antlers to horns, and examining teeth were some of the experiences for kids and grown-ups during this event.

In collaboration with UAMN Mammals.



207
attendees



247
attendees

ART family day

March 14, 2014

Together with their caregivers, kids tried printmaking, created totem drawings, and went on a basket scavenger hunt.

In collaboration with UAMN Fine Arts.



249
attendees

ARCHAEOLOGY family day

April 25, 2015

Budding archaeologists sketched ancient tools, excavated at a mock dig, and tried throwing atlatls at a mammoth target.

In collaboration with UAMN Archaeology, UAF Anthropology, National Park Service, and the Bureau of Land Management.

Education and Public Programs

SPECIAL EXHIBITS

Arctic Odyssey: Voyages of the R/V Sikuliaq

The education department hosted Family Day: Ocean Science and an event at the Noel Wien library through a new partnership. A kit about marine mammals was developed to connect with exhibit themes.

Key Ingredients: America by Food

This traveling exhibit was displayed at UAF's Career and Technical College downtown. We helped to develop local content to supplement the exhibit, provided activities at a First Friday reception, and held a number of events including Family Day: Food.

Vogel: 50x50

Hands-on art activities and gallery activity sheets were created for this art exhibit. In addition, workshops were offered to help kids and adults explore contemporary art.

Expedition Alaska: Dinosaurs

Education and Public Programs helped develop interactive elements, including a dig site and virtual field camp for the exhibit that opened in May 2015.

DEVELOPMENT AND PRESENTATIONS

Agopian, M. 2014. Museums Alaska Conference. Seward, AK.

Arseneau, J. 2015. Nanoscale Informal Science Education Network Meeting. Minneapolis, MN.

Arseneau, J. and **G. Vance.** 2015. After the bell: partnering with and advocating for afterschool programs. Association of Science-Technology Centers Webinar.

Vance, G. 2015. Innovative art and science education at the University of Alaska Museum of the North. Geological Society of America Cordilleran Section Meeting. Anchorage, AK.

STAFF LISTING

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Museum Educator

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STUDENTS

Amanda Spencer

Terry P. Dickey Education
Intern

Funding for student positions in the education department is provided through two endowments. Donations to the Alaskans and Terry P. Dickey funds cover UAF student salaries. Student employees process kit loans, do object database work, and conduct programs. Our students are often the faces people see at outreach fairs and on weekends. We are grateful to have these talented and dedicated UAF students working with us.



CLOCKWISE FROM TOP: Jennifer Arseneau and her family join the Friends of the UA Museum at the annual Walk for Charity event. Photo by Theresa Bakker. Amanda Spencer gets into the spirit of mammals month with a selfie. Photo by Amanda Spencer. Maïté Agopian tries out an interactive feature of the *Key Ingredients* exhibit. Photo by Theresa Bakker.



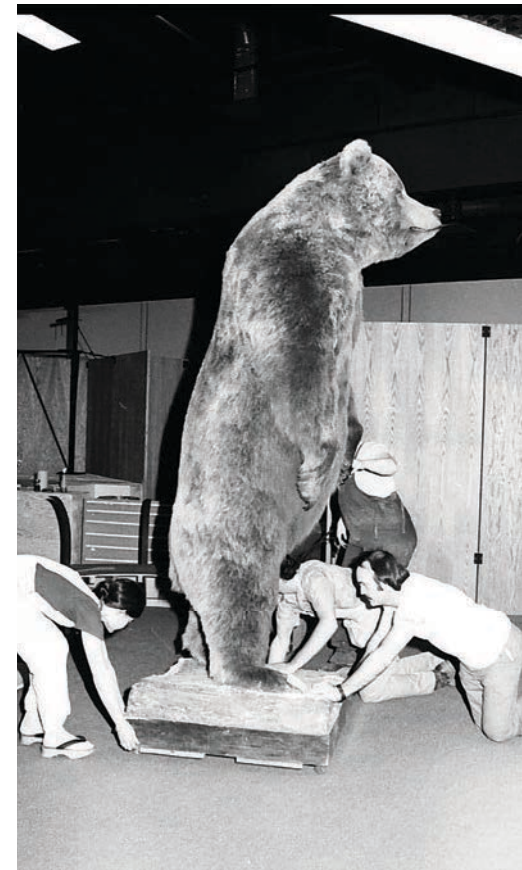
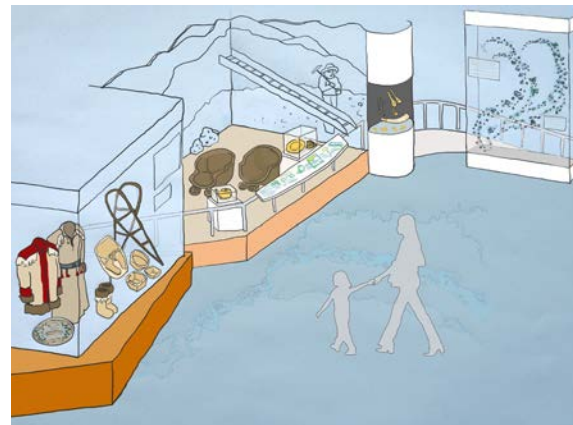
Exhibits, Design, & Digital Media

GALLERY OF ALASKA

The museum has begun the process of renovating its largest and oldest gallery into an experience designed for the 21st Century. Over the last decade, the museum has dramatically enhanced the level of interactivity in programs and special exhibits. Now we will transform the museum's best known exhibit. The current Gallery of Alaska was installed in 1980 with minimal improvements. Since then, Alaska, the world, and our understanding of it has changed. There are new stories to be told.

Key internal goals of the project are:

- Modernizing interpretation and object conservation
- Increasing public access to UAMN's collections and research
- Better engagement by visitors, especially Alaskans
- Improving the museum's profile with UAF researchers as an outreach opportunity
- Stimulating new education and public programming initiatives



ABOVE: This compilation of historic photos and design ideas for the new Gallery of Alaska marks the 35th anniversary of the exhibit hall, largely unchanged since it was first opened. UAMN photos.

PREVIOUS PAGE: Members of the museum's exhibits and earth sciences departments celebrate the completion of a special exhibit several years in the making, *Expedition Alaska: Dinosaurs*. Photo by Theresa Bakker.

Exhibits, Design, & Digital Media

EXPEDITION ALASKA: DINOSAURS

This exhibit highlights dinosaurs from the earth sciences collection and was inspired by years of field and lab work, new fossil discoveries, and extensive video footage from sites across Alaska.

The exhibit includes touchable bones and dinosaur tracks, an interactive dig site, children's activities in a mock field tent, new dinosaur casts, and extensive video footage from multiple sites around Alaska.

In coordination with the exhibit, the museum produced a 35-minute film narrated by Earth Sciences Curator Patrick Druckenmiller.

The film presents the adventure, hardship, and discoveries of collecting in wild Alaska.

Video footage was taken by museum staff over a period of five years.

*What an amazing exhibit!
My family loved how interactive
all of the stations were!*

— April Munson



TOP TO BOTTOM, LEFT TO RIGHT: This painting by James Havens depicts a new species of dinosaur described by UAMN researchers analyzing specimens from the museum's earth sciences collection. Graphic designers RJ Mikulski and Tamara Martz place a panel in the new exhibit. Student Sarah Day works on an interactive element of the new exhibit. Preparator Jonah Wright examines a dinosaur footprint. Curator Pat Druckenmiller and student Eric Metz assemble a dinosaur mount. The whole team heaves a heavy palm fossil into place. Photos by Roger Topp.



Exhibits, Design, & Digital Media



KEY INGREDIENTS: AMERICA BY FOOD

October 3 - November 21

The Downtown Association of Fairbanks and the Co-op Market partnered with UAMN to bring this exhibit to the UAF Community and Technical College. Produced by the Smithsonian Institution as part of the Museum on Main Street initiative, the exhibit toured the state of Alaska thanks to a grant from the Alaska Humanities Forum. The exhibits crew worked with Marketing & Communications Manager **Theresa Bakker** to create a series of videos for the exhibit and with Senior Collections Manager **Angela Linn** to display a small companion exhibit to *Key Ingredients* within the Museum Café including museum objects relating to food.

CLOCKWISE FROM TOP LEFT: Dairy cows browse in front of the Creamer's Dairy building in Fairbanks. Photo from the UAF archives. Student Nathan Feemster and now-retired exhibits coordinator Steve Bouta place a sculpture in the *Vogel 50X50* exhibit. Photo by Theresa Bakker. Testing the winch onboard the R/V *Sikuliao* near Puerto Rico. Photo by Roger Topp. Recording the voice tracks for *PoLAR Voices*. Photo by Theresa Bakker.



SEASON ONE: The museum's production team produced the first season of a new part-scripted, part-interview audio drama. *PoLAR Voices* educates the public on climate change science and community issues through an episodic story line. This adventure-mystery is constructed of present day research spoken by those who study and those who are affected by change at the poles.



ON-GOING PROJECT

The museum produced the third season of *PoLAR Voices*, a series of radio episodes with complementary Internet media. Using natural sound, recorded elements and interviews

gathered on location, the radio series explores climate change through expertise available through the *PoLAR* Climate Change Education Partnership. The four-year project is funded by the National Science Foundation through Columbia University.

ARCTIC ODYSSEY: ONBOARD THE SIKULIAQ

As part of the *Arctic Odyssey: Voyages of the R/V Sikuliaq* special exhibition at UAMN, the production team made three voyages onboard the new research ship during its first year of operation by the University of Alaska Fairbanks. Film crews traveled to Montreal, San Juan, and Dutch Harbor to film the vessel during sonar, winch, and sea ice trials in the North and South Atlantic and the Bering Sea. Film from the voyages was shown in the exhibit, through online blogs and YouTube, and made available to SFOS and researchers for future education and outreach.



Exhibits, Design, & Digital Media

CONFERENCES & FIELDWORK

Topp, R. July 2014. *Arctic Odyssey* filming onboard the RV Sikuliaq. St. Lawrence River & North Atlantic.

Gobroski, K. 2014. Signs of the Land: Reaching Arctic Communities Facing Climate Change. PoLAR Voices recordings. Howard Luke Galee'ya Camp, AK.

Gobroski, K. August 2014. Oceanographic conditions of bowhead whale habitat, recordings with S. Okkonen and C. Ashjian. Barrow, AK.

Gobroski, K. August 2014. *Key Ingredients* recordings, Calypso Farm and Golden Heart Plaza. Fairbanks, AK.

Topp, R. August 2014. Earth Sciences expedition filming. Colville River, AK.

Topp, R. and **K Gobroski.** September 2014. *Arctic Odyssey* filming onboard the RV Sikuliaq. San Juan, Puerto Rico.

Foss, H. September 2014. *Arctic Currents* outreach at Barrow Science Meeting. Barrow, AK.

Gobroski, K. October 2014. *Arctic Currents* narrative recording. Barrow, AK.

Topp, R. October 2014. Association of Science and Technology Centers. Raleigh, NC.

Topp, R. November 2014. Meeting with Gallery of Alaska consultant. New York, NY.

Foss, H. December 2014. *Arctic Currents* community outreach. Nome and St. Lawrence Island, AK.

Topp, R and **H Foss.** January 2015. *Arctic Currents* presentation. Coastal Marine Institute. Anchorage, AK.

Topp, R. January 2015. Filming rocket launch for 50th Anniversary exhibit. Poker Flat, AK.

Gobroski, K. January 2015. Permafrost tunnel planetarium recording with GI scientist Matt Sturm. Fox, AK.

Topp, R. March 2015. Filming during RV Sikuliaq ice trials. Bering Sea, AK.

Topp, R. April 2015. PoLAR Voices planning. Arctic Science Summit Week. Toyama, Japan.

INSTALLATION PROJECTS

The production department worked with Fine Arts Curator **Mareca Guthrie** to install *The Last Road North*, a temporary exhibit of photos by Ben Huff.

The IRIS Active Earth Monitor & Earthquake kiosk was on loan in the *Changing Alaska* exhibit.

PUBLICATIONS AND GRAPHIC DESIGN

--- with Marketing and Communications ---

NEW: Museum Discovery Series
Chefs at the Museum (event)
Halloween at the Museum (event)
Open House (event)

Family Days (Archaeology (2), Food, Ocean Exploration, Space, Art, Mammals)
Docent recruitment ad
FDNM (online, wrap, visitor guide, visitor map)
UAMN Holiday campaign
Milepost ad
Wells Fargo Military Appreciation ad
Alaska Airlines ad
Alaska Magazine (Co-Op ad, Travel Directory ad)
Alaska Railroad ad
Alaska Visitors Guide ad
Bearfoot ad
Explore Fairbanks ad
UAMN Annual Report

--- with Education ---

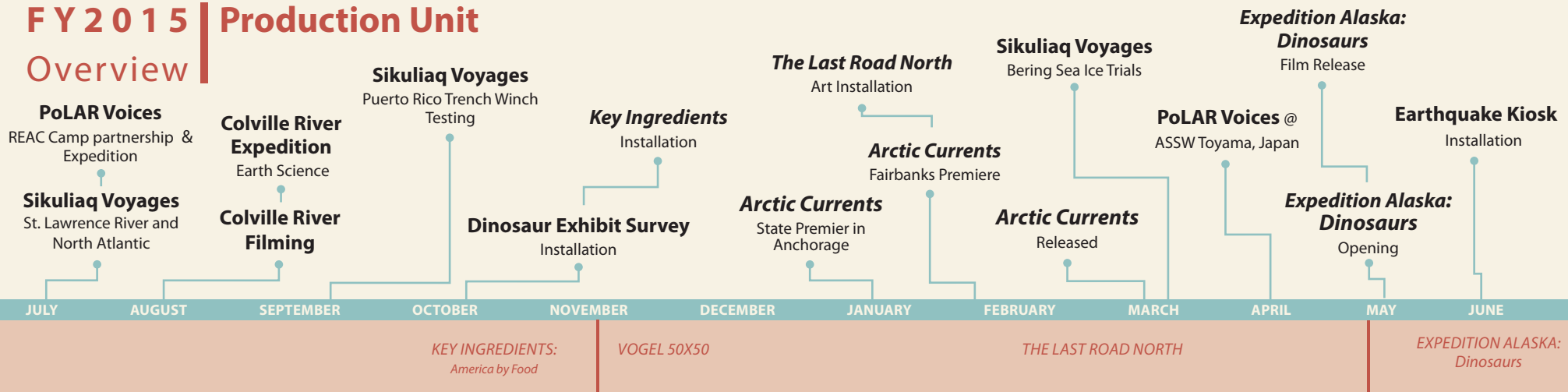
Sleepover ad
School programs (tri-fold and inserts)
Product design: Pencil for school giveaways
Homeschool Day ad

--- with Visitor Services ---

New Navigation map and resources station in lobby
Product design: T-shirt and hat for *Expedition Alaska: Dinosaurs*
Product design: Cover for *Expedition Alaska: Dinosaurs* DVD

Exhibits, Design, & Digital Media

F Y 2 0 1 5 | Production Unit Overview



STAFF CHANGES

The UAMN Exhibits, Design, and Media Production Team was joined by several new staff and students in FY15 and left by one long-term key team member. **Steve Bouta**, coordinator of exhibits and design, having worked for more than 30 years at the museum, retired this year. He allows us to call once per week with questions. Joining the team are Preparator **Jonah Wright**, Designer **RJ Mikulski**, and Student Assistant **Sarah Day**.

STAFF LISTING

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Hannah Foss

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Digital Media Producer

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STUDENT ASSISTANTS

Sarah Day

Nathan Feemster

Jasmin Johnson

TOP TO BOTTOM: An MTeX rocket launch at the Poker Flat Research Range. Photo by Roger Topp. An animated krill from the UAMN-produced film *Arctic Currents*. UAMN Graphic





Visitor Services

Museum Store – Admission – Tours – Events

Visitor Services

THE YEAR-IN-REVIEW

Operating the visitor services & retail operations department consists of overseeing the Museum Store, the admission and information counter, movies in the auditorium, event rentals, and gallery security. Our department continues to focus on staff training and customer service. We look forward to sharing our Alaska knowledge with you.

Our department consisted of 23 people:

- 4 full time staff
- 19 university students and temporary employees

Thank you to Wells Fargo for continuing to support our Alaska Military Appreciation program. This year, we welcomed 3,390 active duty military personnel and their families to our galleries at no cost to them.

MUSEUM CAFÉ

The museum had a bit of a facelift this year. We welcomed the Alaska Coffee Roasting Co. into our café space. ACRC has elevated our service to a new level of excellence. With amazing drinks, sandwiches, and baked goods, the café is drawing crowds like never before. In addition to ACRC, we were able to transform the café's seating into a more welcoming space as well as adding tables and chairs to the main lobby.

PREVIOUS PAGE: The Museum Store features a new section, thanks to an expansion completed in the summer of 2015.

Photo by Theresa Bakker.



Special Events

The museum hosted 30 events this fiscal year, including Chefs at the Museum, two weddings, the new Museum Discovery Series lectures, and free public events. Three of our largest annual events, Halloween, the UAF Sparktacular Warm-Up, and our Open House, brought 2,479 people into the museum at no charge. We love these major events and can't wait to see you next year.

COUNTER CLOCKWISE, FROM TOP LEFT: The museum hosts a variety of private events each year. Photo by Jake Sirevaag. The Museum Store is lit for the holidays. Photo by Jake Sirevaag. The Museum Café now features drinks and treats by the Alaska Coffee Roasting Co. Photo by Theresa Bakker. The museum lobby now features seating with a stellar view. Photo by Jake Sirevaag.



Visitor Services

The Alaska Travel Industry Association Convention was in Fairbanks during the fall of 2014, and we were the venue for the “Good as Gold” Opening Reception. It was wonderful to have 459 of our tourism friends and family together at this annual event. Explore Fairbanks and ATIA sent 184 tour operators and travel writers to visit us during FY15. Working with these operators and writers is a great way to gain valuable exposure and increase future visitation at the museum.

In addition to the events we host each year, many organizations from the community chose us as a space for their events. Thank you to Fairbanks Cancer Care, Saltchuk, Fairbanks Concert Association, Alaska Oil & Gas Association, Greater Fairbanks Community Hospital Foundation, and Verizon for allowing us to be part of your great event.

FY15 Total Visitation: 86,960

The total income earned by the museum’s Visitor Services & Retail Operations department was \$1,368,464. After expenses, 43% of that figure, or \$589,922, was used to support museum programs for education, exhibits, collections, and research.



BACKGROUND: Whalebone masks by Alaska Native artists featured in the Museum Store. Photo by Theresa Bakker.

SUMMER Visitation

53,391

Increased
698
from 2014

WINTER Visitation

33,569

Decreased
7,956
from 2014

VISITATION

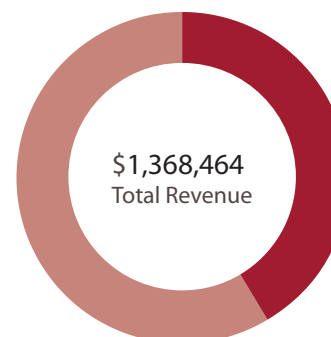
Summer months:

May, June, July, August, and September: 53,391 total visitors
Increased over previous year

Winter months:

October, November, December, January, February, March, April: 33,569 total visitors. Decreased from previous year

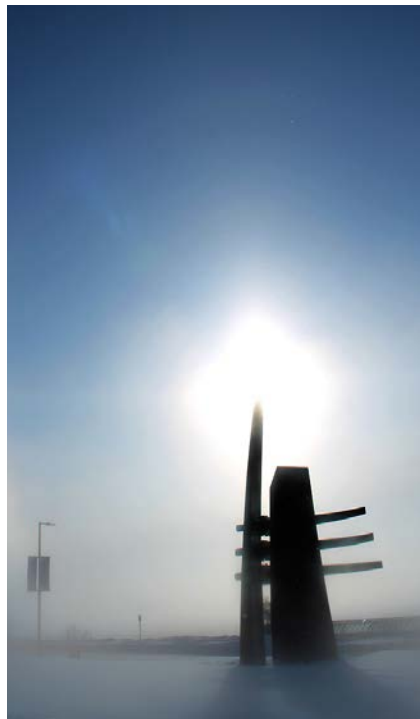
TOTAL MUSEUM REVENUE



\$589,922

Profit used to support
museum programs

Visitor Services



VISITOR SERVICES STAFF

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Clair Ashmead

Codi Burk

Sarah Day

Lance Ellanna

Cassandra Ellis

Eleanor Guthrie

Mikayla Hamlin

Madison Hoisington

Lindsey Johnson

Taylor Kane

Saeko Kuwabara

Tommie Lamb

Tashina Pitka

Tazheem Rubio

Morgan Simpson

Sarita Spindler

Tiffany Summers

Amelia Tulim

Sara Williams

CLOCKWISE FROM TOP LEFT: The Museum Store features a variety of jewelry and other Alaska Made products year round. Photo by Theresa Bakker. When Gloria Steinem (pictured with Museum Director Aldona Jonaitis) visited the UAF campus in the summer of 2015, the museum was one of only a few attractions on her list of must-sees. Photo courtesy Aldona Jonaitis. The Totem sculpture by Bernard Hosey on the museum grounds circled by an atmospheric halo. Photo by Jake Sirevaag. Visitor Services Manager Dan David and Flat Otto take care of the museum's popular station in the UAF Tent at the Tanana Valley State Fair. Photo by Theresa Bakker. Longtime employee Morgan Simpson recently resigned from the museum to pursue her education after many years of service. Photo by Theresa Bakker.



Research and Collections

Alaska Center for Documentary Film



Alaska Center for Documentary Film

The past year has been a busy and productive one at the Alaska Center for Documentary Film with the completion of a major new research film, the launch of an ambitious collection initiative, and an expanded public service mission.

COLLECTIONS INITIATIVE

During the past year, the film center completed the restoration of its critically-acclaimed film *Uksuum Cauyai: The Drums of Winter*. The naming of the film to the National Film Registry of the Library of Congress in 2006 was a public mandate for preserving this work for future generations. Thanks to generous grants from the National Film Preservation Foundation and the Rasmuson Foundation and support from KYUK-TV, Donlin Gold Company, SummitDay Media, Chase Audio, and ColorLab Film Laboratory, we were able to complete a full photo-chemical and digital restoration of the film. The result is a stunning new version for classroom, home, and theatrical showings.

Preservation work has now begun on other titles produced in 16mm film, including *At the Time of Whaling* and *On the Spring Ice* (Gambell, AK, 1975); *From the First People* (Shungnak, AK, 1978) and *Tununerimiut* (Nelson Island, AK, 1972); and *Every Day Choices* (Bethel, AK, 1985). Once funding is in place, the second phase of the restoration process will be completed by a qualified film laboratory. The intended outcome of this project is to produce preservation elements in the original 16mm format for long term storage, along with quality digital master files suitable for the high resolution digital needs of the future.

With a new grant from the Museums Alaska Collection Management Fund, we will complete the transfer of film and magnetic elements to vented storage containers for long-term vaulted storage. These containers help to prevent the build of acidic gasses that degrade film emulsion over time.



AUDIO ARCHIVES

Kathy Turco is one of Alaska's best known sound artists. Over her 25-year career, she has produced hundreds of hours of oral history recordings with Alaska Native elders as well as an archive of natural sounds of Alaska. Some of her best known natural sound recordings appear in the museum's audio guide. Over the past year, Kathy has been working with Curator **Len Kamerling** to organize and prioritize her oral history archive and design a strategy for preservation. In the planning are audio productions for radio and podcasts that will help to bring her irreplaceable cultural recordings to the public.



PREVIOUS PAGE: The scene-by-scene digital colorization of *Drums of Winter* at the ColorLab restoration film laboratory in Rockville, MD.

Photo by Len Kamerling.

CLOCKWISE FROM TOP: This graphic shows the restoration process of black and white archival images in the *Drums of Winter* film. Ethnographic filmmaker Sarah Betcher filming seal hunting on the Bering Sea for her series on climate change and subsistence reliant communities. The film center's curation room, where continual maintenance of film materials helps keep them viable for future generations.



Partnerships and new work

The Film Center is proud to announce the completion and release of its newest film, *Changa Revisited*, a sixty-minute work that examines the journey of a Maasai family in Tanzania over a period of thirty years of economic and cultural change. The film is a product of a five-year research collaboration with the San Francisco State University Program in Visual Anthropology and the Maasai community of Changa. This research focuses on global indigenous migration, the movement of indigenous people to cities after the loss of traditional livelihoods.

Change Revisited explores the lives of Maasai elder Toreto de Koisenge and his family from two points of a thirty-year divide: 1980, when anthropologist and filmmaker Peter Biella first visited Changa for his dissertation research, and 2009, when Biella and Leonard Kamerling returned to investigate the long-term consequences of urban migration. In the ensuing years, life had changed drastically for Toreto's family. The world of the Maasai pastoralist had grown smaller as pressures on the traditional livelihood increased, driving both young and older people to the cities. *Changa Revisited* uses black and white photographs from 1980 and video footage from the present day to construct the complex story of a Maasai family's passage through three decades of tumultuous cultural and economic change.

Changa Revisited is a beautiful (heartbreaking) unfolding of a Maasai man's life and how it affects and alters the life around him. What is perfectly conveyed is how larger "social forces" push at and sway and block him, and yet, amid which he is clearly responsible for how he lives. Presented with great respect and very beautiful in its rendering.

Katherine McNamara, Publisher, Artist's Proof Editions



A deeply-felt document about change and the human condition. It cuts right through the exotic. Not a master narrative about Maasai culture, instead it's a quiet, deliberate film about individual and human struggle. Changa Revisited is unobtrusive and respectful. It has the feeling of being made from the inside looking out. For me, it's pure cinema: visually direct and uncluttered, made by filmmakers at the top of their craft.

Vincent Stenerson, Emmy Award Winning Documentary Editor



RIGHT, TOP TO BOTTOM: Poster for the film *Changa Revisited* about a Tanzanian Maasai family over a period of thirty years of tumultuous change. Changa women listen to voice recordings in 1980. Milika, wife of Toreto, is a central character in the new documentary *Changa Revisited*. Mama Shelia of Changa. Children of Changa in 1980. Photos by Len Kamerling, Richard Cross and Peter Biella.



Alaska Center for Documentary Film

PUBLIC SERVICE

The Film Center has expanded its outreach to include classes in photo and film preservation. Many people feel overwhelmed with the responsibility of caring for family collections, especially those inherited from previous generations. These very popular classes present strategies and techniques for individuals to preserve their irreplaceable family photo, slide, tape and film collections. The classes have been offered through Museum workshops and through OLLI-OSHER. In the past year we have offered five sessions of the basic photo preservation class.

The Drums of Winter Restoration Project has brought approximately 12,000 linear feet of new, archival film preservation elements, digital masters and digital cinema package files to the Film Center. Two of the new 16mm copies acquired will go to the Library of Congress for storage in perpetuity. Other preservation materials will be stored in the Rasmuson Library film vault.

STAFF LISTING

Leonard Kamerling	Curator 474 7437 ljkamerling@alaska.edu
Sarah Betcher	Film Editor and Research Associate
Heyon Doc Chong	Visiting Researcher

RESEARCH ASSOCIATES AND AFFILIATES

John Luther Adams
Sarah Betcher
Sarah Elder
Matthew Gilbert
Kathy Turco

CONFERENCE PRESENTATIONS

Kamerling, L. 2014. Nanook revisited: a reconsideration of Robert Flaherty's seminal 1922 documentary *Nanook of the North*. CLA Humanities Colloquium. Fairbanks, AK.

Kamerling, L. 2014. *Uksuum Cauyai: The Drums of Winter* showing and discussion. Joint Conference of Museums Alaska and Alaska Historical Society. Seward, AK.

Kamerling, L. 2014. *Visions of Endurance: the films and photographs of Frank Hurley*. Fairbanks Concert Association's Stories from the Explorers Club Lecture Series. Fairbanks, AK.

Kamerling, L and B Curtis-Johnson. 2014. A Tale of Two Preservations: *Uksuum Cauyai* and *Begich and Boggs Last Night*. Joint Conference of Museums Alaska and Alaska Historical Society. Seward, AK.

Kamerling, L, W Charlie, and B Curtis-Johnson. 2014. *Uksuum Cauyai: The Drums of Winter* showing and discussion. Alaska Native Heritage Month Opening Event. Anchorage, AK.

Kamerling, L. 2015. *The North: A History in Three Acts*. International PhD School for Studies of Arctic Societies. Fairbanks, AK.

Kamerling, L, W Charlie, and B Curtis-Johnson. 2015. *Uksuum Cauyai: The Drums of Winter*, showing and discussion. Statewide tour. Fairbanks, AK.

Kamerling, L. 2015. *Uksuum Cauyai: The Drums of Winter* showing and presentation, Communicating Wellness in Cultural Media. Kawerak Corp. Rural Providers Network Conference. Nome, AK.

Kamerling, L. 2015. *Uksuum Cauyai: The Drums of Winter* showing and presentation. International PhD School for Studies of Arctic Societies. Fairbanks, AK.



Research and Collections

Archaeology



Archaeology



OVERVIEW

The museum's archaeology department had another busy, fun year in FY15 with a diverse combination of field and collections-based research, collection rehousing projects, and the hiring of new staff members. **Fawn Carter** was hired to a three-year term position to work with the museum's archaeology, ethnology & history, and design and exhibits departments. She spends half of her time as the assistant archaeology collection manager and the rest as the museum's new project registrar. In that position, Carter plays an important role in the ongoing redesign of the Gallery of Alaska as the liaison between each of the ten research departments and the museum's exhibit team.

ABOVE: The Middle Fork of the Fortymile River flows past an archaeological site on the hill in the background. Photo by Sam Coffman.

PREVIOUS PAGE: UAMN and BLM archaeologists test an archaeological site along the Middle Fork of the Fortymile River in Interior Alaska. Photo by Jake Adams.

RESEARCH AND FIELDWORK

During the past year, members of the archaeology department continued with ongoing studies while starting several collaborative research efforts. Collections Manager **Scott Shirar** continued ongoing lab analysis and write up on two multi-year research projects through grants with the National Park Service. One is in collaboration with Jeff Rasic of the National Park Service and independent researcher Eric Carlson focusing on Late Prehistoric archaeology and rock art in the Brooks Range. The second, in collaboration with Loukas Barton of the University of Pittsburgh and James Jordan of Antioch University, looks at prehistoric human-environment interaction on the Central Alaska Peninsula. In July, the team led an archaeology

module for UAF's Alaska Summer Research Academy for the fifth time in the last six years. Ten high school students joined the archaeology department on an excavation at the Chena Townsite, located at the confluence of the Chena and Tanana Rivers in Fairbanks, Alaska.

Research Archaeologist **Sam Coffman** started fieldwork in Amalik Bay located in Katmai National Park and Preserve. This collaboration with the Park Service, Barton, and Jordan seeks to address the earliest seasonality of early coastal cultures dating back approximately 6500 years ago. He also completed initial survey work of the Toklat River drainage of Denali National Park and Preserve.



Archaeology

This project is aimed at collecting baseline data to further understand the prehistory of the drainage and is a collaboration between Jacob Adams, a Ph.D. student at Washington State University, and Nicole Kamp, a Ph.D. student at the University of Graz, Austria. A planned multi-year project was also initiated with the Bureau of Land Management in the Fortymile River drainage. Rhyolite geological samples were collected from both Denali and Wrangell National Park and Preserves. These samples have assisted greatly in the rhyolite sourcing project being conducted by Coffman and Rasic.

Curator **Josh Reuther** continued his geoarchaeological and paleoecological research on the Upward Sun River site and the Quartz Lake/Shaw Creek Flats Multidisciplinary Projects with Charles Holmes and Ben Potter from the Department of Anthropology at UAF, Dave Klein

of the UAF Institute of Arctic Biology, Nancy Bigelow from the UAF College of Natural Sciences and Mathematics, Matthew Wooller with the Alaska Stable Isotope Facility and Water and Environmental Research Center at UAF, and Jason Rogers of Northern Land Use Research Alaska. Reuther joined a lake coring project led by Wooller at Little Lost Lake, next to Quartz Lake, to understand shifts in lake levels over the past 13,000 years and how that relates to changes in climate.

Surveys and excavations at several sites in the Shaw Creek and around Quartz Lake were carried out with Justin Hays and David Plaskett, graduate students from UAF, and Jennifer Kielhofer and Francois Lanoe, graduate students from the University of Arizona. Kielhofer and Lanoe are currently working on dissertation projects that focus on understanding changes in the late Pleistocene and early Holocene faunal, soil and

sediment records from the Shaw Creek catchment and Quartz Lake sites.

Reuther, David Plaskett, and Sam Coffman excavated at two sites in the Nenana Valley, the Healy's Lucky Strike and Nenana River Gorge sites. This work is part of a project to understand the changes in the archaeological record during the last 10,000 years in the Nenana River Valley. The geoarchaeological research at the Healy's Lucky Strike has led to a collaborative project with Alex Cherkinsky at the Center for Applied Isotope Studies at the University of Georgia to understand the variation of radiocarbon in windblown silt deposits in Interior Alaska.

BELOW: The surrounding landscape at low tide in Amalik Bay, Katmai National Park and Preserve. Photo by Sam Coffman.





Archaeology

The excavation at the Nenana River Gorge is part of Plaskett's dissertation research and was featured during a culture camp sponsored by Denali National Park & Preserve. High school students and teachers from the Cantwell, Fairbanks, and Healy areas participated in a hands-on field experience. In addition, the museum staff collaborated with National Park Service archaeologist Phoebe Gilbert on an archaeology-themed Family Day held at the Murie Science and Learning Center in Denali.

Reuther also continued work on the potential effects of volcanic ashfalls to local ecosystems and human land use in Interior Alaska. Lab analyses and a preliminary report were completed for the collaborative effort (as part of the environmental studies for the Susitna-Watana Hydroelectric Project) in the Upper Susitna River region with Drs. Nancy Bigelow and Matthew Wooller and Katherine Mulliken (UAF), and Kristi Wallace (USGS). As part of her Master's thesis, Kate Mulliken continues her work with Reuther and Potter and Kristi Wallace, on characterizing the geochemistry of the tephras and understanding potential changes in the archaeological record coincident with the ash falls in the Susitna River region. The Upper Susitna River region project collaborators will be working on several articles throughout the year to disseminate the results.

Reuther and Shirar are working with Joan Coltrain of the University of Utah, Owen Mason from GeoArch Alaska, Shelby Anderson of Portland State University, Adam Freeburg of the National Park Service, and Peter Bowers of Northern Land Use Research to assess the differences in radiocarbon variation between caribou and seals in the Kotzebue Sound region of Alaska. The initial results of this project were presented at the annual meeting for the Anthropological Association in Anchorage in March 2015. We are presenting these results nationally at the Society for American Archaeology meetings in April 2016, and drafting a publication to be submitted in the next year.

Reuther continues to work with Northern Land Use Research Alaska, Chumis Cultural Services, Native Village of Kaktovik, and ExxonMobil to document, describe, and provide access in Alaska to the 1914 Dimond Jenness collections from Barter Island. The project is creating a detailed database, along with photographing and 3D-modeling artifacts from the collections that will be made available to the community of Kaktovik, educators, and researchers.

TOP TO BOTTOM: David Plaskett excavating at the Nenana River Gorge site with Healy and Cantwell area high school students.

Photos by Scott Shirar.

Several members from the community of Kaktovik and the village board travelled to the museum to view and discuss the significance of the collections. ExxonMobil created films that describe the project. The results will be included in an exhibit at the museum in Spring 2016.





Archaeology

New archaeological collection deposited

The archaeology department recently accessioned a collection from the Sikoruk site located in the Brooks Range. Excavated in the 60s and 70s by Edwin S. Hall Jr., the artifacts were mostly hidden away in storage until now.

Sikoruk is located on the northern shore of Tukuto Lake in the central Brooks Range. The site contains more than 100 house pits and 350 cache pits representing occupation between 1450 A.D. and 1800 A.D. The collection shows a wide variety of materials and activities from the Late Prehistoric to early historic Inupiat traditions. Artifacts include handled knives with blades made from slate and metal, numerous caribou bones, chipped-stone projectile points, polished jade adze heads, engraved ivory projectile points, fishing gear such as ivory jigs, and decorative pieces like the wrist guard in the lower right photo.

Before any of the artifacts from Sikoruk could be integrated with the existing collections at the museum, the staff first needed to rehouse them to ensure the long-term preservation of materials. Thin ivory pieces are wrapped in tissue paper, foam, or boxed to prevent them from breaking. Degraded leather pieces are cleaned of any acidic materials, such as tape or paper, that would break down the organic artifact over time. Museum staff use acid free archival materials to house each artifact, whether it's a fragment of wood or a delicately carved and polished piece of ivory.

The artifacts from Sikoruk represent a small portion of the Ed Hall collections at the museum. Boxes contain photographs, maps, and field journals for sites on Pingok Island, Feniak Lake, and along the Noatak River. Many digital copies of reports and analyses not previously known about were found on floppy disks. As the archaeology department continues to work with the Ed Hall collection, more of these exciting artifacts will be available for research, teaching, and exhibition.



CLOCKWISE FROM TOP: Engraved ivory leister prong. Decorated antler wrist guard depicting a bird hunt. Chipped stone endscraper with engraved ivory handle. UAMN photos.



Archaeology

CARING FOR COLLECTIONS

Work continued on the new archaeology collection database during FY15. Information associated with more than 6000 archaeological accessions is now available in Arctos, while work continues on standardizing information pertaining to the 350,000 catalog records. In addition to the new database, several collection projects were completed during FY15, which included work to upgrade existing collections and incorporate newly-deposited artifacts and specimens.

Over 50 boxes of collections excavated from an archaeological site in the Arctic National Wildlife Refuge during the late 1970s and early 1980s were deposited in October 2014 and completely rehoused, inventoried, and cataloged. The Bureau of Land Management provided funding during FY15 to continue work started the previous year rehousing and inventoried collections and artifacts from the Sikoruk site. Numerous BLM legacy collections were also upgraded with this funding. Work began, and will continue in the coming years, to upgrade and integrate the Carter Collections, which include over 26,000 artifacts collected in the 1950s from several sites on the North Slope near Barrow, Alaska.

During FY15, the archaeology department staff continued consultation that began in FY14 with the Native Village of Barrow and Bureau of Land

Management under the Native American Graves Protection and Repatriation Act (NAGPRA). This consultation resulted in the successful repatriation of 39 partial sets of human remains. The department also worked with the Alutiiq Museum and Archaeological Repository in Kodiak to repatriate human remains from Near Island, Alaska to the Tangirnaq Native Village and the Sun'aq Tribe of Kodiak. NAGPRA consultation was also initiated between the US Fish and Wildlife Service and the Native Village of Kaktovik that has led to a draft "Notice of Inventory Completion" which is currently under review. We look forward to this consultation process resulting in a successful repatriation and we hope to enter into consultation with additional Alaska Native communities in FY16.



ARCHAEOLOGY STAFF

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Fawn Carter	Assistant Collection Manager
Lori Hansen	Curatorial Assistant
Allie Little	Curatorial Assistant
Jake Adams	Archaeological Field Technician

RESEARCH ASSOCIATES

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 Julie Esdale
 Brian Hemphill
 Erica Hill
 Christopher Houlette
 James Jordan
 Jeff Rasic
 Howard Smith

LEFT: A ground slate projectile point found during excavations at XMK-027 in Katmai National Park and Preserve. Photo by Sam Coffman.



Archaeology

CONFERENCE PRESENTATIONS

Bowman, RC and **JD Reuther**. 2015. Aeolian sand sheets as paleoenvironmental archives in the middle Tanana River Valley. Alaska Anthropological Association Annual Meeting, Anchorage, AK.

Cherkinsky, A, **CL Glassburn**, and **JD Reuther**. 2014. 14C Age of Collagen and Bioapatite Fraction of Late Pleistocene Bison Teeth from Alaska, USA. International Conference on Accelerator Mass Spectrometry, Aix en Provence, France.

Coffman, S and JT Rasic. 2015. Geochemical Characterization and Distribution of Rhyolite in Central Alaska. Alaska Anthropology Association Annual Meeting, Anchorage, AK.

Coffman, S, L Barton, **S Shirar**, and J Jordan. 2015. Recent Excavation at Two Ocean Bay Sites in Katmai National Park. Alaska Anthropological Association Annual Meeting, Anchorage, AK.

Glassburn, C, BA Potter, **JD Reuther**, and MJ Wooller. 2015. Steppes across the land: reconstructing steppe bison behavioral ecology in east-central Alaska using strontium, oxygen and carbon isotopic analyses of bison teeth. International Union of Quaternary Research meetings, Nagoya, Japan.

Higgs, AS, **JD Reuther**, and CB Wooley. 2014. Gateway to Nome: James L. McPherson and the 1914 Alaska Railroad: Kuskokwim Route Reconnaissance Survey from Cook Inlet to Iditarod. Alaska Historical Society Annual Conference, Seward, AK.

Kielhofer, J, **JD Reuther**, **F Lanoe**, D Plaskett, and **JS Rogers**. 2015. Summer at the lake: new carbon-14 (14C) dates on "old" cultural components near Quartz Lake, interior Alaska. Society for American Archaeology Annual Meeting, San Francisco, CA.

Kyungcheol, C, BA Potter, **JD Reuther**, **HJ McKinney**, NH Bigelow, and MJ Wooller. 2015. Chemical analyses of terminal Pleistocene hearth residues at the Upward Sun River site in central Alaska. Alaska Anthropological Association Annual Meeting, Anchorage, AK.

Kyungcheol, C, BA Potter, **JD Reuther**, **HJ McKinney**, NH Bigelow, and MJ Wooller. 2015. Chemical analyses of terminal Pleistocene hearth residues at the Upward Sun River site in central Alaska. International Union of Quaternary Research meetings, Nagoya, Japan.

Lawler, BA and **S Coffman**. 2015. Lithic Source Provenance Analysis: Cost Path Analysis of Rhyolitic Artifacts from Interior Alaska – Preliminary Results. Alaska Anthropological Association Annual Meeting, Anchorage, AK.

Mulliken, KM and **JD Reuther**. 2014. Holocene Volcanism and Its Affect on Human Occupation in the Susitna River Valley, Alaska. Tephra 2014 - Maximizing the Potential of Tephra for Multidisciplinary Science, Portland, Oregon.

Mulliken, KM, KL Wallace, and **JD Reuther**. 2015. Holocene volcanism and its effect on human occupation in the Susitna River Valley, Alaska. Alaska Anthropological Association Annual Meeting, Anchorage, AK.

Potter, BA, JD Irish, **JD Reuther**, and **HJ McKinney**. 2015. New discoveries at the Upward Sun River site, Central Alaska. Alaska Anthropological Association Annual Meeting, Anchorage, AK.

Reuther, JD, JB Coltrane, OK Mason, S Anderson, A Freeburg, **S Shirar**, and PM Bowers. 2015. Exploring Differences in Radiocarbon Ages of Seals and Caribou: A Case Study from Kotzebue Sound. Alaska Anthropological Association Annual Meeting, Anchorage, AK.

Reuther, JD, **JS Rogers**, C Wooley, O Mason, J Baxter-McIntosh, and R Bowman. 2015. 100 years revisited: Diamond Jennes' 1914 Barter Island excavations and the progress of systematic archaeology in Alaska. Northwest Anthropological Conference, Eugene, OR.



Archaeology

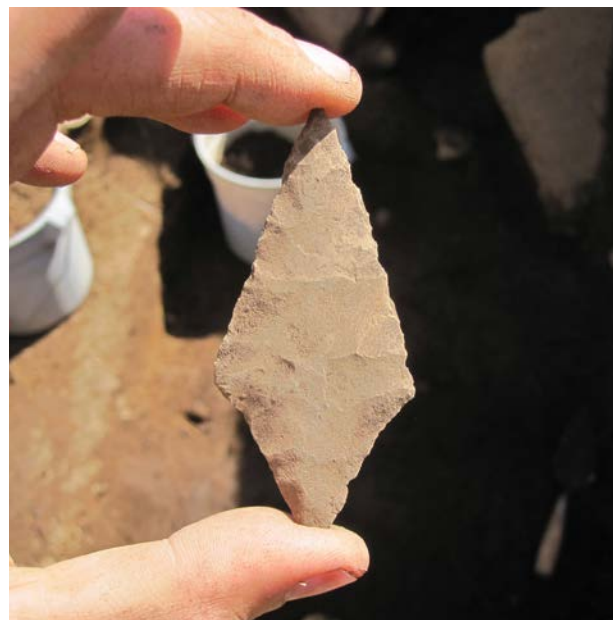
Reuther, JD, JS Rogers, KL Wallace, JM Hays, K Olmedo, RC Bowman, and CB Wooley. 2014. High Altitude Ecosystems, Volcanic Eruptions and Human Land Use: A 7,000 Year Record from the Western Alaska Range. Geological Society of America Annual Meeting, Vancouver B.C., Canada.

Rogers, J, **JD Reuther**, C Wooley, J Baxter-McIntosh, R Bowman, and O Mason. 2015. Diamond Jenness at Barter Island: a 100-year retrospective. Alaska Anthropological Association Annual Meeting, Anchorage, AK.

Shirar, S, L Barton, and J Jordan. 2015. Volcanism, Environmental Change, and Human Settlement: Patterns of Prehistoric Human Occupation on the Alaska Peninsula. Alaska Anthropological Association Annual Meeting, Anchorage, AK.

Wooley, C, **JS Rogers**, **JD Reuther**, J Baxter-McIntosh, and R Bowman. 2015. Cultural Resources Management Strategies in the Eastern Beaufort Sea. Alaska Anthropological Association Annual Meeting, Anchorage, AK.

Younie, A, C Fik, **E Combs**, R Sattler, and **JD Reuther**. 2015. William Sheppard's survey of the Deadman Lake and other areas of the Upper Tanana region: new results from archived data. Alaska Anthropological Association Annual Meeting, Anchorage, AK.



CLOCKWISE FROM TOP: Artifacts and animal bone remains in the excavation at the Nenana River Gorge site. Archaeological features exposed in the excavations at the Nenana River Gorge site. A biface found during excavations at XMK-224 in Katmai National Park and Preserve. Photos by Josh Reuther.



Research and Collections

Earth Sciences



Earth Sciences

ALASKAN DISCOVERIES

The earth sciences department had a highly successful year in the field and added important new fossil vertebrates, invertebrates, and plants from various locations throughout the state to the collection.

Kevin May, Julie Rousseau, Steve Bouta, Jacob VanVeldhuizen, and undergraduate student Meghan Shay completed the second trip on the Yukon River in July 2014. They significantly added to the museum's collection of dinosaur tracks and plant fossils from a very productive new site discovered in 2013. This field area, which spans over a hundred miles of river-cut outcrops along the lower Yukon River, is significant in that it documents an ancient high latitude forest teeming with dinosaurs roughly 90 million years ago.

In August 2014, Curator **Pat Druckenmiller**, Kevin May, Julie Rousseau and Jacob VanVeldhuizen journeyed to the Colville River on the North Slope to collect polar dinosaur fossils. They were joined by Florida State University paleontologist Gregory Erickson, FSU student David Kay, and Oklahoma State University paleontologist Paul Gignac. Work focused on two newly-discovered sites, resulting in the recovery of rare meat-eating dinosaur bones, new herbivorous dinosaur remains, and even tiny mammal fossils.

PREVIOUS PAGE: Jacob VanVeldhuizen, David Kay, and Julie Rousseau (left to right) prepare a dinosaur dig site halfway up a cliff along the Colville River in northern Alaska. UAMN photo.



This work is providing an ever-growing picture of life in a 69 million-year-old polar forest. **Roger Topp** joined the team to capture the work on video as part of the *Expedition Alaska: Dinosaurs* exhibit. Abroad, Druckenmiller returned to the Arctic archipelago of Svalbard, Norway to participate in fieldwork with colleagues from the Oslo Museum of Natural History. The team began a new project studying Triassic-aged marine reptile fossils, which have not been actively studied in this area for nearly a century. An astounding amount of new material was recovered, which will be the focus of excavations in coming years. Druckenmiller also was part of a team to reexamine one of the northernmost dinosaur track sites in the world, on the east coast of Spitsbergen. The work revealed that tracks previously believed to be made by carnivorous dinosaurs were in fact those of herbivorous ornithomimid dinosaurs.

In the Spring of 2015, Druckenmiller and May traveled to Southeast Alaska to collaborate with Tongass National Forest geologist Jim Baichtal. Thanks to considerable logistical support from the U.S. Forest Service, the team visited a highly productive, 55 million-year old fossil plant locality first described in the 1930s. This site produced a palm frond nearly six-feet wide, now on display in the dinosaur exhibit. The team also located several previously unrecognized tracks made by large and small mammals inhabiting the ancient forests of Southeast Alaska.

ABOVE: Jørn Hurum, Hans Arne Nakrem, and Øyvind Hammer (left to right) from the University of Oslo Natural History Museum investigate a dinosaur track site along the east coast of Svalbard, Norway. Photo by Patrick Druckenmiller.



EXPEDITION ALASKA: DINOSAURS

In May 2015, the museum opened an exhibition highlighting major new discoveries of dinosaurs and marine reptiles made by the earth sciences department in Alaska. It is the culmination of many years of fieldwork, study, and collaboration with scientists and state and federal agencies to better understand Alaska's amazing paleontological history during the Age of Dinosaurs.

Curator Druckenmiller worked closely with the education and exhibits staff to produce an engaging, interactive, and educational set of displays that not only tell the story of Alaskan dinosaurs, but also how paleontologists find and study fossils. Most importantly, many of the most recent fossil discoveries were displayed for the first time, including a rare thalattosaur fossil from Southeast Alaska, dinosaur tracks from the Yukon River, and bones and teeth of a variety of dinosaurs from the North Slope – the most productive site for polar dinosaurs in the world.

Work also began on an exciting new dinosaur display in the museum lobby. Thanks to support from the UA Board of Regents, the museum will install three free-standing duck-billed dinosaur skeletons from northern Alaska. The mounts are made from casts of real bones collected along the Colville River and come from a new species unique to Alaska. They were made by exhibit creator Michael Holland of Bozeman, Montana. A large (11'x16') and realistic painting of the new Alaskan dinosaur by Anchorage artist James Havens in August 2015 is also on display in that space. Thanks to funding from the Rasmuson Foundation, this striking work will serve as the backdrop for the skeletal mounts.

ABOVE: Curator Pat Druckenmiller carefully navigates a steep slope while looking for Triassic marine reptiles on the Arctic archipelago of Svalbard, Norway.

Photo by Patrick Druckenmiller.



Earth Sciences



In June 2015, a team consisting of Druckenmiller, artist James Havens, and amateur paleontologists Curvin Metzler and Greg Carr ventured into the Talkeetna Mountains of Southcentral Alaska to locate and excavate part of a long-necked Mesozoic marine reptile called an elasmosaur that was first discovered by Metzler in 2013. This is the first elasmosaur ever found in the state of Alaska. A considerable portion of the skeleton appears preserved but only a small portion was collected in 2015, necessitating future trips to collect the remaining bones.

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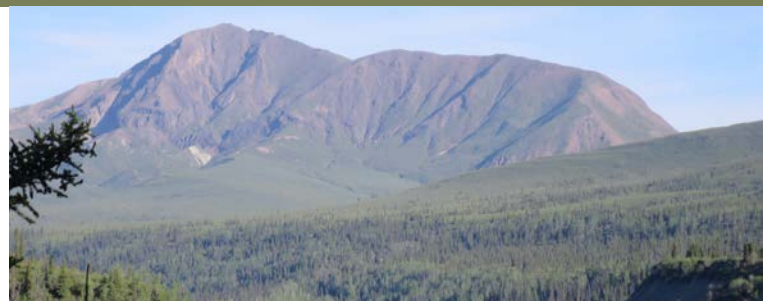
RESEARCH ASSOCIATES

Gregory M. Erickson, Florida State University
Jørn Hurum, University of Oslo Natural History Museum, Norway
Josh Miller, University of Cincinnati
Neil Kelley, Smithsonian Institution

TOP & MIDDLE: Excavating the OJsaurus dinosaur bonebed along the Colville River. The bonebed layer is situated about halfway up a 50-foot cliff.

BOTTOM: Greg Carr (left) and Curvin Metzler at the cliff-side excavation of an elasmosaur in the Talkeetna Mountains. The bones were removed in protective plaster jackets, such as the one in the foreground.

Photos by Patrick Druckenmiller.



CLOCKWISE FROM TOP: The Talkeetna Mountains, near the elasmosaur site. Dinosaur tracks at a remote site on the east coast of Svalbard, Norway. Excavating dinosaur bones at the OJsaurus Bonebed along the Colville River. Preparing plaster jackets for the Colville River OJsaurus bones. Photos by

Patrick Druckenmiller.



Collection Highlights

Several earth sciences specimens were highlighted in new research and work on Alaskan fossils. In the *Journal of Vertebrate Paleontology*, Curator Druckenmiller and colleagues formally described the skeleton of an ichthyosaur (a marine reptile) first discovered in 1950 in the Brooks Range foothills. The fossil was collected in 2002 with help from CH-47 Chinook helicopters from the “Sugar Bears,” the Army’s B Company, 4th Battalion, 123rd Aviation Regiment based at Fort Wainwright. The 210 million year-old ichthyosaur, which would have been close to 30 feet long in life, preserves

stomach contents consisting of shells and bone fragments in its gut region, providing a rare glimpse into the diet of this group.

In February and March 2015, JP Cavigelli, Preparation Lab Manager at the Tate Geological Museum in Casper, Wyoming, finished preparation of one of Alaska’s most remarkable fossil skeletons – a 220 million year old marine reptile known as a thalattosaur from Southeast Alaska. The specimen is currently on display as part of *Expedition Alaska: Dinosaurs*, and is a species new to science.

Several specimens were sampled as part of a landmark study revealing that mastodons – large, hairy elephant-like animals that lived during the Ice Age – disappeared from northern areas much earlier than previously thought. The study was led by Grant Zazula of the Yukon Palaeontology Program in Whitehorse, Yukon Territory, and focused on updating existing radiocarbon dates. The results of this study demonstrate that humans could not be implicated in the extirpation of mastodons in Alaska.

Finally, the museum celebrated the 30th anniversary of the iconic steppe bison skeleton Blue Babe’s donation to the collection. As part of a collaboration between the museum’s archaeology and earth sciences departments and the Center for Applied Isotope Studies at the University of Georgia, Blue Babe was radiocarbon dated using more recent techniques; although the final dates are pending, it likely is significantly older than the 36,000 years previously believed.



LEFT TO RIGHT: Preparing dinosaur fossils in the earth sciences lab. Photo by Patrick Druckenmiller. Archaeology Curator Josh Reuther and François B. Lanoë with the University of Arizona take a sample from Blue Babe. Scientists hope to use new technology to get a more precise radiocarbon date than previously available. Photo by Julie Rousseau. The skeleton of *Dromaeosaurus*, a small carnivorous dinosaur on display in the *Expedition Alaska: Dinosaurs* exhibit. Photo by Patrick Druckenmiller.



Earth Sciences

PERSONNEL UPDATES

Master's student **Eric Metz** joined the department in August 2014. The Montana State University graduate will be describing a new species of thalattosaur, a marine reptile that lived during the Triassic Period. His research specimens were found in eastern Oregon and are on loan to the museum from the University of Oregon Museum of Natural and Cultural History. In June 2015, Metz traveled to the University of California Berkeley as well as to museums in Italy and Switzerland to study other thalattosaur specimens for comparison.

In November 2014, Druckenmiller and PhD student **Katherine Anderson** attended the 73rd annual meeting of the Society of Vertebrate Paleontology in Berlin, Germany. Anderson also traveled to the Stuttgart State Museum of Natural History to study one of the world's largest collections of ichthyosaurs, a group of Mesozoic marine reptiles which are the basis of her dissertation research.

After three years as the museum's earth sciences collection manager, **Julie Rousseau** left her position in April and moved to Washington D.C. Julie was an invaluable member of the department and was involved in the reorganization and digitization of the collection, as well as numerous field expeditions. We were very sad to see her go. Anderson was hired as a part-time collection manager in June 2015.

CONFERENCE PRESENTATIONS

Druckenmiller, P, H Mori, GM Erickson, and A Prieto-Márquez. 2014. Arctic hadrosaurid diversity in the Maastrichtian: new data from the Prince Creek Formation of Northern Alaska. Society of Vertebrate Paleontology, Berlin, Germany.

May, K, P Druckenmiller, P McCarthy, J Hurum, J Rousseau, and K Anderson. 2014. Tracking dinosaurs along the Yukon River: a new dinosaur-dominated ichnofossil assemblage from the mid-Cretaceous arctic of Alaska. Society of Vertebrate Paleontology, Berlin, Germany.

Roberts, A, **P Druckenmiller**, and J Hurum. 2014. New insights into the paleobiology of the cryptoclidid plesiosaurs from the Upper Jurassic Agardhfjellet Formation of Svalbard. Society of Vertebrate Paleontology, Berlin, Germany.

Roberts, A, **P Druckenmiller**, L Deslett, and J Hurum. 2014. The Slottsmøya Member – A diverse, Upper Jurassic Boreal marine reptile Lagerstätte. International Palaeontological Congress, Mendoza, Argentina.

RIGHT: Julie Rousseau, JP Cavigelli of the Tate Geological Museum, and Jim Baichtal, a geologist with the Tongass National Forest, (left to right) admire a spectacular 55 million-year old palm frond from Southeast Alaska. The fossil is now on display as part of the exhibit *Expedition Alaska: Dinosaurs*. Photo by Patrick Druckenmiller.

Druckenmiller, P, G Erickson, DB Brinkman, C Marshall Brown, **H Mori, K May, J Rousseau**, and **K Anderson**. 2015. A distinct, early Maastrichtian polar dinosaur fauna from the Prince Creek Formation of Northern Alaska. Oral presentation, Cordilleran Section of the Geological Society of America, Anchorage, Alaska.

Druckenmiller, P, N Kelley, JF Baichtal, **K May**, and **E Metz**. 2015. An exceptional new thalattosaur (Reptilia) from the Late Triassic (Norian) Hound Island Volcanics of Southeastern Alaska. Cordilleran Section of the Geological Society of America, Anchorage, Alaska.





Research and Collections

Entomology



Entomology

NEW MEMBERS AND MILESTONES

The museum's entomology department grew between 2014 and 2015 with the addition of new members to the dedicated team of lab technicians. **Jennifer MacDougall**, **Adam Haberski**, and **Kathryn Daly** joined continuing technicians **Sarah Meierotto**, **Megan McHugh**, **Samantha Burd**, **Jayce Williamson**, **Nolan Rappa**, **Lacey Broskey**, and **Mary Wyatt**. Sarah left for graduate school to study entomology at the University of Kentucky in May. Graduate student Jill Stockbridge defended her thesis and graduated in August 2014.

The collection reached a databasing milestone of over 200,000 records in 2014. This year the department added another 30,068 records for a total of 230,068. These records represent approximately 1.3 million specimens. The museum's insect collection ranks among the top five largest online entomology collection databases in the United States. It is exceeded only by the Snow Museum, the Illinois Natural History Survey, the C.A. Triplehorn Insect Collection, and the Texas A&M Insect Collection.

Among these new records were samples of a blind and wingless rove beetle, *Chionotyphlus alaskensis*, a soil-dwelling predatory species only known from Interior Alaska (see page 45).

10,851
loaned

The lab also reached a milestone in creating DNA barcodes for about half (1,531) of the species in the collection. These DNA barcodes will help future researchers identify organisms using genetic data. The department sent out more loans this year (51 loans totaling 10,851 specimens/ lots) than ever before. Funds from the Alaska Department of Fish and Game, the Alaska Division of Agriculture, the U.S. Forest Service, and the United States Fish and Wildlife Service supported these accomplishments.

Other highlights include the publication of a study on bumblebees of Interior Alaska with former UAF graduate student Rehanon Pampell. The curation of the **Kenelm W. Philip** butterfly collection was a major focus and preparations for the production of a field guide to Alaska's butterflies, a nearly 50-year project of Ken Philip's, are almost complete. The guide is expected to be available in early 2016. We also had the pleasure of hosting for three months Fulbright Scholar **Zdenek Fric** from the Czech Republic, who was in Alaska conducting research on the phylogeography of holarctic butterflies.

30,068
databased

1,531
DNA Barcoded Species



TOP TO BOTTOM: Field Museum Curator Emeritus Alfred Newton (left) with UAMN graduate student Logan Mullen collecting staphylinid beetles along the Steese highway. Photo by Derek Sikes. UAMN Insect Collection preparation lab members (from L to R) Adam Haberski, Sarah Meierotto, Logan Mullen, Jayce Williamson, Kathryn Daly, and Derek Sikes. Photo by Link Olson.

PREVIOUS PAGE: Psocopteran (*Amphigerontia bifasciata*) from Valdez, AK. Curator Derek Sikes was hoping this would be the male of an undescribed species known from this site. Unfortunately, it wasn't. Photo by Derek Sikes.



Entomology

A Lasting Gift

An endowment has been established to benefit the entomology collection at the University of Alaska Museum of the North. The family of Kenelm Philip has funded the “Kenelm W. Philip Entomology Fund,” with the hope of attracting additional donations.

Philip was a renowned collector of Alaska Lepidoptera. He donated more than 83,000 Arctic butterflies and moths to the Smithsonian and other collections, including the University of Alaska Museum of the North. It is the largest private collection of arctic butterflies in the world. He passed away in March 2014.

Curator **Derek Sikes** said the fund will help establish a student research enhancement award to support entomological research in Alaska with a preference for research focused on butterflies or moths.

“With this award Ken’s legacy of Alaskan research will live on,” Sikes said. “Ken was a giant of Alaska entomology. We are thrilled his family chose to establish this fund to help continue the work Ken began.” Sikes said the funds will also help provide for maintenance and improvement for the insect collection.

To contribute to the endowment, please visit www.uaf.edu/giving/gift/giving-form/. The Gift Designation box should be filled in with “Kenelm W. Philip Entomology Fund.”



TOP: These are just some of the thousands of Arctic butterflies and moths collected by Ken Philip in his decades of work in Alaska. Photos by Theresa Bakker.

BOTTOM: Ken Philip collected insects across Alaska and found many of his specimens close to home. Photo by Robert Pyle.

CONFERENCE PRESENTATIONS

Sikes, DS and **S Meierotto**. 2014. Entomological data in Arctos: Uses inside and out of the museum. Entomological Collections Network Annual Meeting, Portland, OR.

Sikes, DS. 2014. Alaskan Arthropods: DNA barcoding, phylogeography, and lots of collecting. DNARCT project mini-conference, (Biodiversity of the High North: DNA barcoding and phylogeography of Arctic insects – student training in molecular methods and analyses), Naturhistorisk Museum, Oslo, Norway.

Sikes, DS, **ST Trumbo**, **ST**, and **SB Peck**. 2015. *Nicrophorus vespilloides* (Coleoptera: Silphidae): One species or two? Alaska Entomological Society Annual Meeting, Fairbanks, AK.

STAFF LISTING

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James Kruse (moths)
Steve Peek (flies)
Robert Progar (forest insects)
Jozef Slowik (spiders)
Susan Wise-Eagle (spiders)



Entomology



CLOCKWISE FROM TOP: 2014 Bug Campers with UAF graduate student Logan Mullen. Freshly collected (UAM:Ento:311814) weevil specimen for the UAMN insect collection, *Lepyrus gemellus*. Research team scrambling up a dangerous gully on Kasatochi volcano. At the top is an auklet colony which is one of three hotspots for insect life on the volcano after its 2008 eruption. Photos by Derek Sikes.

Unique Alaska Species Added to Collection

In the summer of 2014, the museum's Curator of Insects **Derek Sikes** added an exciting addition to the collection, a rare beetle found only in Interior Alaska. This tiny (less than 2 millimeters long), blind, and flightless beetle lives in the soil below the leaf litter among the roots of plants.

It's a species and genus that is known only to occur in the cities of Fairbanks, Nenana, and Chatanika. That makes it an Alaskan endemic. As far as anyone knows, it is not found anywhere else in the world.

The beetle was first described in 1986 under the name *Chionotyphlus alaskensis* and is presumed to be a tertiary relict. That means it survived due to the lack of glaciers in much of Alaska during the Pleistocene Era.

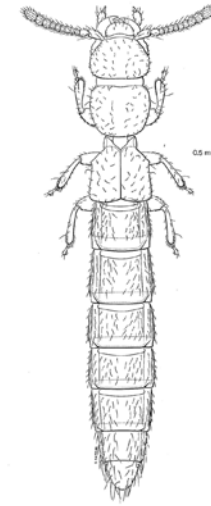


Fig. 1: *Chionotyphlus alaskensis* n.g., n.sp.



"I've known about this species since I arrived here in 2006," Sikes said, "but despite various efforts, hadn't found it until I got lucky this year."

The process of extracting the beetles from the soil is complicated and starts with first washing the dirt and leaves in water and letting all the organic matter float to the top. The organic mass is then put into a Berlese funnel and heated with a light bulb to drive the small organisms into a collection bag below.



ABOVE, LEFT TO RIGHT: An illustration of the beetle *Chionotyphlus alaskensis* from the original publication by Ales Smetana. Sometimes researchers have to sift through dense soil and leaf matter to find insects, in this case a tiny beetle that was known to occur in Alaska but not yet added to the museum's insect collection.

LEFT: A series of Berlese funnels, used for extracting arthropods from soil and litter samples, are heated with lightbulbs, which drives small organisms to move into the collection bag below. Photos by Derek Sikes.



Research and Collections

Ethnology & History



Ethnology & History

LEARNING OPPORTUNITIES

The fiscal year 2015 provided a great deal of learning opportunities for the members of the ethnology and history department. October of 2014 saw the importation of our 14,000 specimen records into Arctos. The team spent the rest of the fiscal year learning how to use Arctos more effectively and efficiently for cataloging collections, keeping track of loans, research requests, and photo requests. We have begun to upload many of our images and look forward to getting even more of these into Arctos.

Over the summer of 2015, the department hosted a museum studies summer intern from the Indiana University Purdue University Indianapolis (IUPUI). **Rebekah Ryan**, an incoming second year MA student in museum studies at IUPUI, spent six weeks honing her skills in cataloging, object processing, exhibition content development and installation, as well as the registration processes that accompany off-site exhibits and loans. She created an exhibition for the UAF Rasmuson Library entitled *Symmetry in Alaska Native Design*, which included an educational guide.

PREVIOUS PAGE: The Kolmakovsky Blockhouse looks good in the April sunshine. The museum's conservation project was completed thanks to a grant from the National Park Service and the Institute of Museum and Library Services. Photo by Theresa Bakker.



Graduate student assistant **Kirsten Olson** completed her MFA in ceramics with a pair of exhibitions and presentations in November. *Dining Out: An Artful Experience* included a catered dinner at the museum for sixteen using the functional ceramics created by Olson, which were then added to the exhibition at the UAF Fine Arts Complex Gallery. As part of her research, Kirsten presented at the Arctic Regional Division of the American Association for the Advancement of Science (AAAS). She was awarded the Larus Award, which granted her full-funding to attend and present at the National AAAS 2015 Conference in San Jose, CA, where her poster received the "People's Choice" award.



CLOCKWISE FROM TOP LEFT: Museum studies summer intern Rebekah Ryan spent six weeks honing her skills in cataloging, object processing, exhibition content development, and installation. Photo by Angela Linn. Student Assistant Mackenzie Stamey has been processing the museum's new collection of Russian lacquer boxes. Photo by Theresa Bakker. Graduate Student Assistant Kirsten Olson presented at the National AAAS 2015 Conference, where her poster received the "People's Choice" award. She completed her MFA in ceramics with a pair of exhibitions and presentations. Photo courtesy Kirsten Olson. *Dining Out: An Artful Experience* combined a catered dinner at the Museum for sixteen using the functional ceramics created by Olson. Photo by JR Ancheta.



Ethnology & History



Della Hall, who previously worked as a curatorial assistant on the IMLS-funded database project, started her MA in Cultural Anthropology at UAF, shifting her employment status to graduate student assistant. She continued her work on the Ginny Wood collection, which resulted in an exhibition at the UAF Rasmuson Library.

Undergraduate student assistant **Mahriena Ellanna** spent five months traveling with a program called International Studies Abroad. She studied at the University of Melbourne, where she immersed herself in Australian culture and lifestyle, taking classes in art history that are not available at UAF. In Melbourne museums and galleries, she worked directly with the art pieces she was studying.

The department welcomed back undergraduate volunteer **Mackenzie Stamey**, who transitioned into a student assistant position in January. Mackenzie is considering a future career in objects conservation and has spent a good deal of her time processing the new collection of Russian lacquer boxes from the Ruckstuhl collection and undertaking detailed condition assessments.

COLLECTIONS UPDATE

The department accepted 23 new collections, including 164 new items associated with the exploration and early science of the north, a Tukudh (Gwich'in Athabascan) Bible, a set of 26 Russian lacquer boxes, and modern potlatch material from Fort Yukon.

The ethnology & history department also hosted over 250 visitors, including 45 indigenous dancers participating in the 2015 Festival of Native Arts, and 18 northern indigenous elders and researchers participating in UAF's "Math in a Cultural Context" program. These events help share the work of collections-based museums and are often the first time indigenous visitors see the behind-the-scenes operations of an ethnological collection.

LEFT TO RIGHT: Curatorial Assistant Della Hall worked on the museum's Ginny Wood collection, resulting in an exhibition at the UAF Rasmuson Library. Photo by Della Hall. Undergraduate Student Assistant Mahriena Ellanna spent five months traveling with a program called International Studies Abroad. Photo courtesy Mahriena Ellanna. Della Hall worked in the ethnology and history collection as a curatorial assistant, entering thousands of records into the museum's online database, and is now pursuing an MA in cultural anthropology at UAF and working as a graduate student assistant. Photo by Angela Linn.



Ethnology & History

SANCTITY OF SPACE

The photographs of Bradford Washburn, thousands of striking black-and-white photos of mostly Alaskan peaks, are both an artistic legacy and the reference standard for choosing climbing routes, allowing many to follow in his footsteps. **Freddie Wilkinson** is one of them.

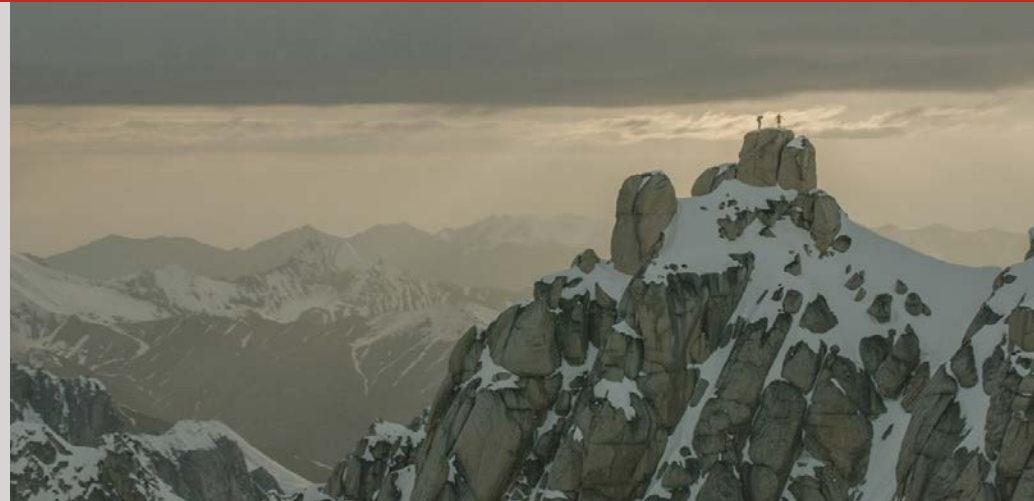
After looking at a series of Washburn's photos of Ruth Gorge, he was inspired to attempt the first traverse of the Moose's Tooth massif. He shared his idea with good friend and climbing partner Renan Ozturk and after several years of attempts, they completed the traverse in 2012.

"Along the way, we got more and more serious about documenting the landscape and our adventures," Wilkinson said. "Gradually a creative partnership emerged. Renan is a talented cinematographer and I'm a writer by trade."

Their project *The Sanctity of Space* will be a "multi-generational homage to the spirit of exploration that has been behind a hundred years of adventure in the Alaska Range."

In July 2014, the film crew visited the UA Museum of the North to document artifacts from the Bradford Washburn collection. The museum preserves and protects about 200 priceless historical artifacts from the famed photographer and climber.

Wilkinson said the UA Museum of the North serves a vital function in connecting 21st century adventurers with the past. "Being able to physically examine and show the equipment that was used to explore and document the Denali region is a tangible reminder of how far we've come, and how much our climbing fore-fathers accomplished."



CLOCKWISE FROM TOP: A still from the film by Freddie Wilkinson and Renan Ozturk that will feature artifacts from the museum's collection. Photo by Wilkinson & Ozturk. Senior Collections Manager Angela Linn worked with a film crew to portray the artifacts of Bradford Washburn in the museum's collection. Photos by Kirsten Olson.



Ethnology & History

SYMMETRY AND BALANCE

Rebekah Ryan has a background in anthropology and art, and is interested in the art and technology of indigenous peoples, a fascination she's had since she was a kindergartener. Those interests brought her to the University of Alaska Museum of the North as an intern in the ethnology and history collection.

As luck would have it, the museum's ethnology & history department was partnering with the UAF Math in a Cultural Context program to bring elders from indigenous communities throughout the Pacific to campus to discuss the math and science principles that have played an important part in their lives.

"After spending an afternoon listening to the elders talk about how to construct waterproof boots, navigate the oceans, and customize traps to catch specific varieties of fish, I was inspired to learn more," she said.

Ryan designed a brochure illustrating examples from the museum's galleries which led to several displays.

"As I began developing the Rasmuson exhibit, I kept thinking how great it would be to highlight the symmetry of Alaska Native objects already on display at the museum. Many of the objects that I chose for the activity sheet were ones that I remembered from my first visit to the museum – their beauty, utility, and stories really left lasting impressions on me."

A common theme that emerged from her research was the importance of symmetry and balance. "Since the word symmetry applies to many things, I was able to talk about art, science, math, and beliefs all in one exhibit."

Her exhibit was displayed at the Rasmuson Library on the UAF campus and at a table in the museum's lobby during the summer of 2014.

BELOW, LEFT & RIGHT: Museum intern Rebekah Ryan developed an exhibit to highlight the symmetry of Alaska Native objects already on display at the UA Museum of the North.

BELOW, MIDDLE: On a table across from the Gallery of Alaska, a display illustrates the lessons in Ryan's brochure to help visitors explore symmetry and patterns in Alaska Native art and objects. Photos by Theresa Bakker and Angela Linn.





Ethnology & History

PROFESSIONAL DEVELOPMENT

Angela Linn was re-elected to the Board of Directors and continued to serve in her role as President of Museums Alaska, presenting at the annual meeting in Seward with Communications & Marketing Manager **Theresa Bakker**. Linn was elected to a three-year term on the Western Museums Association Board of Directors, representing Alaska. Linn also continued to serve on the Fairbanks North Star Borough Historic Preservation Commission, helping to implement the borough's historic preservation plan and consult on projects that impact historic sites in the borough.

Angela also was accepted into UAF's Interdisciplinary Ph.D. program and began taking coursework towards that goal. Her Museum Studies research project is centered on the past, present, and future of Alaska's museums and will include perspectives and research methods from history, indigenous studies, anthropology, and Arctic and northern studies.

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Mahriena Ellanna	Undergraduate Student Assistant
Mackenzie Stamey	Undergraduate Student Assistant
Della Hall	Curatorial Assistant / Graduate Student Assistant



CLOCKWISE FROM TOP LEFT: In May 2015, Senior Collections Manager Angela Linn was honored with the Chancellor's Cornerstone Award, which recognizes University of Alaska staff for outstanding contributions. Photo by Theresa Bakker. A Tukudh (Gwich'in Athabascan) Bible. UA2015-00400001. An Inupiaq doll made around 1936, possibly from Wales. UA2014-016-0001. One of a set of 26 Russian lacquer boxes donated to the museum's ethnology & history collection. UA2014-018-0016. Modern potlatch material from Fort Yukon. UA2014-013-0003.



Research and Collections

Fine Arts



Fine Arts

BRINGING FINE ART TO NEW AUDIENCES

Curator **Mareca Guthrie** worked with the staff at the Rasmuson Foundation and the Anchorage Museum to contribute objects from the fine arts collection for the upcoming touring show *Living Alaska: A Decade of Collecting Contemporary Art for Alaska Museums*. The exhibit features a selection of artwork purchased by grants from the Rasmuson Foundation through the Rasmuson Art Acquisition Fund. Two artworks will be going on display from the UA Museum of the North's fine arts collection. The exhibit will open in Anchorage in the winter of 2015 and tour across Alaska in the following years.

Curatorial Assistant **Gabrielle Vance** and Collections Coordinator **Karinna Gomez** finished work on the coroplast dividers used in the fine arts collection. This completes the third phase of the rehousing and archival upgrade project made possible by a \$100,000 grant from the Rasmuson Foundation. The new space makes the collection much more accessible to faculty, students, researchers, and members of the public. Other projects during this fiscal year include an effort to "unframe" paper pieces in the collection that were previously stored in acidic mats damaging to the artwork.



PREVIOUS PAGE: *Mile 367: Slope Mountain and Pipeline*, 2009. Artwork from *The Last Road North* installation. Photo by Ben Huff.

ABOVE: Curatorial Assistant Gabrielle Vance and Collections Coordinator Karinna Gomez complete finish work on the coroplast dividers. Photo by Mareca Guthrie.

Meet the Vogels

He was a postal worker. She was a librarian. Together they amassed one of the most important contemporary art collections in the world.

The *Vogel 50 X 50* exhibit at the University of Alaska Museum of the North features artwork donated to the museum by Herb and Dorothy Vogel, a New York couple made famous by the PBS documentary *Herb and Dorothy*.

Fine Arts Curator Mareca Guthrie said the Vogels collected nearly 5,000 works of art over several decades. "What makes the Vogel story so compelling," she said, "is that they were regular people who devoted their lives completely to art."

They started by collecting small things from unknown artists in New York on a tight budget." The collection consists primarily of minimalist, post-minimalist and conceptual examples of contemporary art. It has been called one of the most important post-1960s art collections in the United States. The Vogels stored their entire collection in their small Manhattan apartment. Although the works were featured in several exhibitions over the years, the couple astounded the art world when they donated everything to the National Gallery of Art.



ABOVE: Artworks donated to the UA Museum of the North by New York collectors Herb and Dorothy Vogel are on display in the Collections Gallery exhibit *Vogel 50 X 50*.

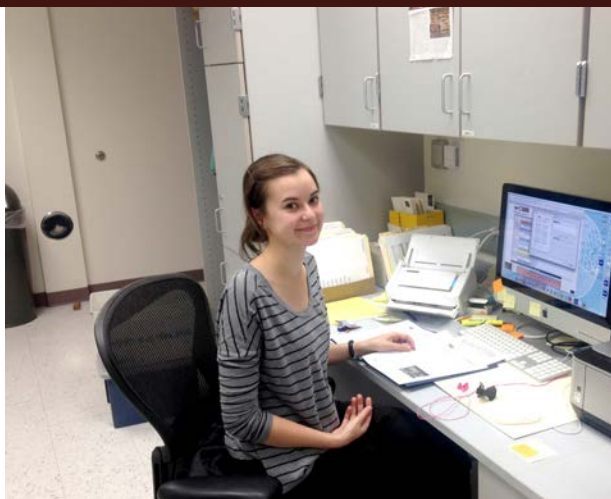
Photo by Theresa Bakker.



Fine Arts



TOP TO BOTTOM: Girls from the Colors of Nature summer academy use colored flashlights to spell out the word "color" during a long exposure in the Creativity Lab in the UA Museum of the North. Colors of Nature participants pose for photo outside the University of Arizona Art Department in Tucson. Photos by Kyle Campbell.



As part of this project, Gomez designed and created standard size folders made from buffered, acid-free paper that are now used to house the unmounted works on paper after they are unframed. Gomez and Curatorial Assistant **Katlian Stark** have designed, cut, and installed Tyvek curtains in the fine arts collection storage space. These curtains are fastened to the storage bins with magnets and provide the collection with protection from dust as well as protection from water in the event of a disaster.

Stark and Vance have also been working to scan all collections-related documents into a database. In preparation for migrating this data into Arctos, the museum's online publicly-accessible database, Gomez has been working to update and organize the current collection database.



Gomez received an Artist Residency in Printmaking at Anderson Ranch Arts Center in Snowmass Colorado for the Fall of 2015. She was also awarded a Rasmuson Foundation Individual Artist Award for the winter of 2015 to travel and continue her printmaking in Norway.

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Collections Coordinator
Fine Arts Collections
Photographer

Gabrielle Vance
Katlian Stark

Curatorial Assistant
Curatorial Assistant

ABOVE, LEFT TO RIGHT: Curatorial Assistant Katlian Stark at her computer. Newly installed tyvek curtains protect the art in storage from dust and light. Photos by Karinna Gomez.



Fine Arts

Artist interprets the last road north

An installation of photographs by Alaska artist **Ben Huff** at the University of Alaska Museum of the North examines a highway not seen by many. *The Last Road North* features nine images Huff made along Alaska's Haul Road with a large format camera during a five-year period.

Huff and his wife first drove the route on a tourist trip to the Arctic Circle in 2006, but they only covered a fraction of the length of the highway. "The entire drive home, I had this grand romantic idea of what the northern stretch would look like. When we got back to Fairbanks, I began looking online for pictures, and was surprised to find that a contemporary portrait of the road hadn't been made," Huff said.

The Haul Road, technically Alaska Route 11 or the James W. Dalton Highway, was built in 1974 as a supply route for the trans-Alaska pipeline and the Prudhoe Bay oil fields. It starts in Livengood, about 80 miles north of Fairbanks, and runs 414 miles to Deadhorse near the Arctic Ocean. Only a quarter of the road has a hardtop. The rest is gravel.

The road is one of the most treacherous and isolated highways in the country. Huff's curiosity about what lay beyond milepost 115 led to a five-year commitment to photographing the Haul Road.

"It was incredibly exciting. Every trip, every season, came with nervousness," he said. "I did feel out of place much of the time, and I used that in the work. That road belongs to the truckers. I respected the job they had to do. In many instances, the pictures show that distance of being a bit on the outside — not being entirely comfortable in the space."

Eventually, Huff earned grants from the Rasmuson Foundation and the Alaska Humanities Forum to complete his book, *The Last Road North*.



It was published by Kehrer Verlag and contains original essays by author Barry Lopez and Karen Irvine, curator at the Museum of Contemporary Photography in Chicago.

Mareca Guthrie, the fine arts curator at the UA Museum of the North, said it was important to purchase a series of these photographs for the permanent fine arts collection.

"Artistically, these photographs are very important," Guthrie said. "Not only is Ben the first photographer to focus specifically on the road, but this series has received a great deal of positive attention outside of Alaska."

The photographs have been exhibited internationally at the Lishui Photo festival in China. The collection has also been included in the *America Now* exhibition at the Montserrat College of Art just outside Boston, Massachusetts; an upcoming solo exhibition at Newspace Center for Photography in Portland, Oregon; and an upcoming solo exhibition at the Alaska Humanities Forum in Anchorage.

Guthrie felt it was important to showcase *The Last Road North* in Fairbanks. "Many of our visitors don't know about the Dalton Highway or what it looks like, so I'm hoping the exhibit will pique their curiosity."

LEFT TO RIGHT: Collections Coordinator Karinna Gomez installs labels for *The Last Road North*.

Photo by Mareca Guthrie. *Mile 250: Crashboard, Coldfoot, 2008*. Photo by Ben Huff.



Research and Collections

Fishes and Marine Invertebrates



Fishes and Marine Invertebrates



NEW MILESTONES

The fishes and marine invertebrates collections added over 8,000 database records, which represent close to 30,000 new specimens. The dramatic growth in the 2015 fiscal year was the result of two important initiatives.

First, we completed the transfer of all specimens previously held by NOAA's Auke Bay Laboratories. This transfer ensured the long-term preservation and broad availability of a very important resource for research on Alaska's fish and marine invertebrate fauna.

Secondly, we initiated the digitization of specimen records linked to the museum's alcohol-preserved marine invertebrates. These specimens represent important records for Arctic biodiversity and were not broadly available in public databases. At the completion of this project, our database will include approximately 20,000 marine invertebrate specimen records spanning more than 80 years of observations.

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8,000+
new database records

LEFT: Volunteers dissected a sleeper shark that was shot near Shismaref when the hunter mistook it for a seal. A UAF fisheries biologist in Nome donated the specimen to the museum. Curator Andrés López said it was a young animal and nothing unusual was found during the dissection that would have caused it to behave erratically and swim so close to the coast. Photos by Theresa Baker.

PREVIOUS PAGE: Visitors admire a variety of fishes and marine invertebrates preserved in jars at the museum's annual Open House. Photo by Theresa Baker.



Research and Collections

Genomic Resources



Genomic Resources

RESEARCH RESOURCE

In October 2014, **Elizabeth Carlen**, a researcher from the California Academy of Sciences, visited the museum to be trained in degraded DNA extraction by Genomic Resources Manager **Kyndall Hildebrandt**. Carlen's studies of African elephant shrews are part of a long-term collaboration involving Hildebrandt, Mammals Curator **Link Olson**, and colleagues at several other institutions. The museum's dedicated Ancient DNA Laboratory is critical to the project's success.

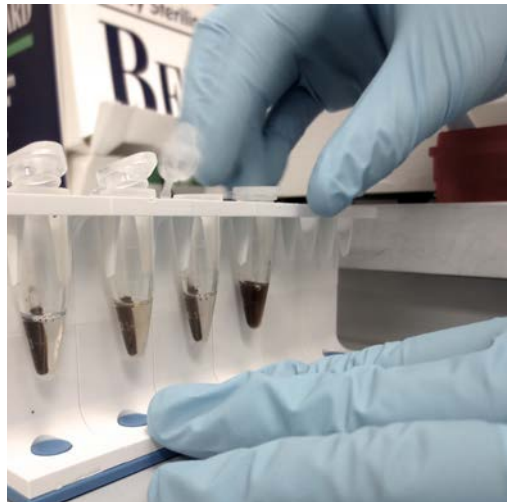
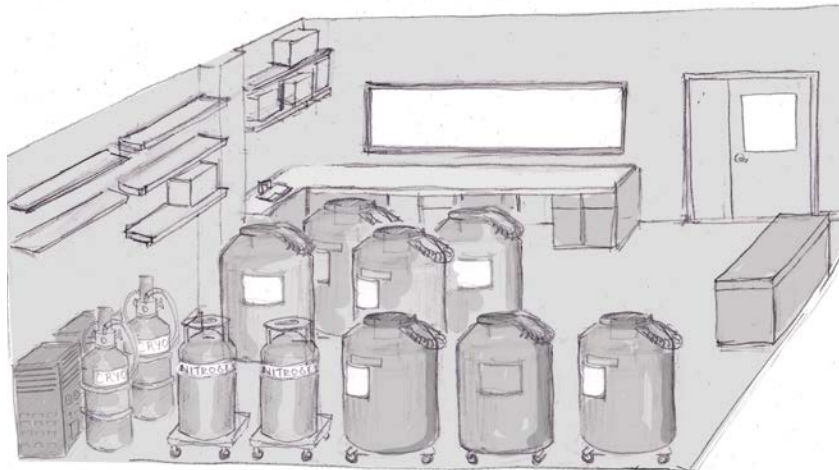
In January 2015, **Tara Fulton**, a research associate at the University of Alberta Department of Mammalogy, returned to continue her collaboration with Hildebrandt, Olson, and several other UAF scientists on a four-year, \$1.7 million study of Pacific walrus genetics and ecology funded by the National Science Foundation. This study also relies heavily on the Ancient DNA Laboratory and historical walrus samples archived at UAMN and other institutions. Fulton, Hildebrandt, and Olson met in Washington D.C. in February 2015 to inventory the collection of walrus specimens housed at the Smithsonian National Museum of Natural History.

PREVIOUS PAGE: Researcher Elizabeth Carlen extracts DNA from elephant shrews in UAMN's Ancient DNA Laboratory.

Photo by Kyndall Hildebrandt.

8,000+
new tissue samples

200,000
samples in archive



CLOCKWISE FROM TOP LEFT: A look at Genomic Resources after upgrades are completed on the facility. Illustration by Mareca Guthrie. Graduate student Michelle Cason and Mammal Collection Manager Aren Gunderson help move the new cryoviat into Genomic Resources. Photo by Kyndall Hildebrandt. Another view of the Genomic Resources facility after upgrades are completed. Illustration by Mareca Guthrie. Close up of DNA from elephant shrews in UAMN's Ancient DNA Laboratory. Photo by Kyndall Hildebrandt.



Genomic Resources



COLLECTION STATISTICS

The tissue collection archives 200,000 samples with an annual growth rate of 6,000 to 8,000 new samples. These are stored in plastic two mL vials within either -80°C mechanical freezers or -196°C liquid nitrogen cryovats. The collection has historically been used for studies of evolution, systematics, population genetics, conservation, ecology, toxicology, and zoonotics. More recently, loans have supported research in transcriptomics and population genomics. The value of NSF-funded projects that have used tissues from Genomic Resources in the past decade exceeds \$15,000,000.

To maintain and grow the collection, the museum relies heavily on financial support from the research community and agency partners. **Kevin McCracken**, a research associate of the museum's ornithology department (currently an Associate Professor at the University of Miami), donated a new mechanical freezer. He has archived thousands of samples at UAMN and plans to continue to donate. We also archive several thousand samples collected on National Park Service lands. In 2014, NPS donated a liquid nitrogen cryovault to house these specimens.

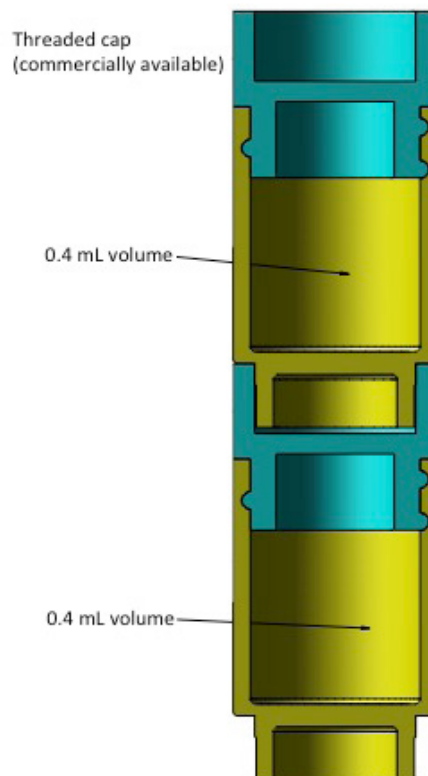
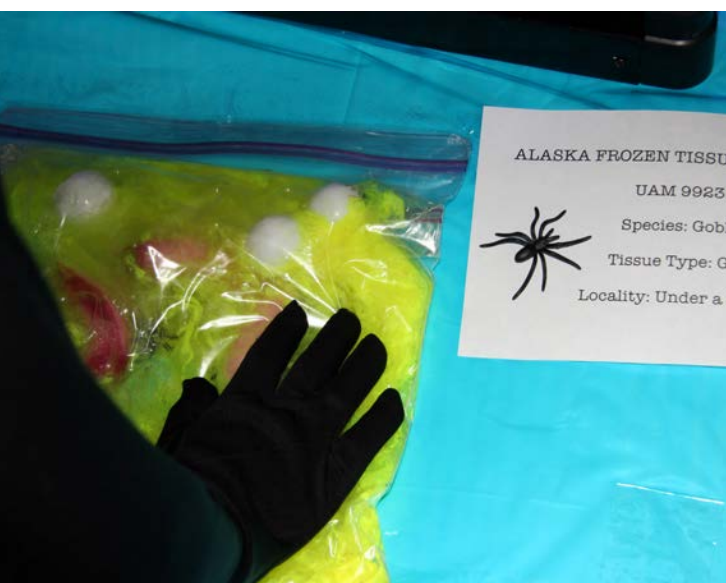
TOP TO BOTTOM: Mammal Collection Manager Aren Gunderson takes a sneak peak of the new cryovault purchased for the collection by NPS. Graduate student Katie Rubin and Mammal Collection Manager Aren Gunderson help install the new mechanical freezer donated by Kevin McCracken. Photos by Kyndall Hildebrandt. Collection Manager Kyndall Hildebrandt admires the new cryovault. Photo by Michelle Cason.

The continued rapid growth of Genomic Resources has strained our ability to properly care for these irreplaceable one-of-a-kind samples in perpetuity. In particular, our aging mechanical chest freezers are failing on an increasingly frequent basis, requiring expensive repairs and maintenance while using an inordinate amount of electricity. Olson and Hildebrandt submitted a proposal to the National Science Foundation to complete the transition from mechanical freezer storage to the more efficient and stable liquid nitrogen system already in use for a part of the collection. The \$491,000 proposal was recommended for funding in June 2015. In addition to upgrading the facilities, the grant will provide sufficient capacity to accommodate continued growth well into the future.

Despite this news, space in the collection remains a primary concern. Olson, Hildebrandt, and Collection Manager Aren Gunderson worked with UAF's College of Engineering and Mines and the Office of Intellectual Property and Commercialization to develop a new kind of cryovial requiring half the space of those currently in use by UAMN and most other museums. Prototypes have been 3D printed at UAF, a patent is pending, and preliminary discussions with several manufacturers are underway.



Genomic Resources



LEFT: Jon Nations performs mad science using liquid nitrogen during the 2014 Halloween at the Museum event. Examining 'goblin tissue' at the Genomics Resources lab during the 2014 Halloween at the Museum event. Photos by Theresa Bakker.

ABOVE: This prototype of half-height cryovials was designed by Curator Link Olson, Collection Manager Kyndall Hildebrandt, and Collection Manager Aren Gunderson. Illustration courtesy Olson, Hildebrandt, and Gunderson.

Genomic Resources remains a "must-see" facility for visitors of all ages. Tours are regularly given to students, visiting scientists, dignitaries, and politicians. As part of the NSF grant, Hildebrandt will work with UAF students to develop graphics providing interpretive information that will be visible outside the secured room housing the cryovats and liquid nitrogen production plant. A video will also allow viewers to learn about the process of obtaining samples in the field, analyzing them in the lab, and sharing the results via publication, data dissemination, and public outreach.

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Tara Fulton



Research and Collections

Herbarium



Herbarium

OVERVIEW

The Herbarium (**ALA**) at the University of Alaska Museum of the North continues to share its data broadly through a presence in ARCTOS, iDigBio, GBIF, and various national webportals dedicated to providing online access to plant specimen records for research and education. With continued support from the National Science Foundation, the herbarium is bringing its more than 267,000 holdings online, making 211,856 high resolution images and 257,892 database entries accessible. This data is accessed frequently. Download statistics continue to be high, totaling 34,528,618 records last year.

ALA is making this biodiversity data available along with many other herbaria and natural history collections as developments in bioinformatics and cyberinfrastructure are transforming collections-based systematics by opening up new opportunities.

ALA is the official acronym given to the UAMN Herbarium in the list of the world's herbaria published by the International Association for Plant Taxonomy.

PREVIOUS PAGE: Alaskan mountain-avens (*Dryas octopetala*, Rosaceae).

RIGHT: Students with the BIOL F195 class search for the elusive moonwort among other roadside weeds along Murphy Dome Road in Fairbanks. Photos by Steffi Ickert-Bond.



257,892

database entries

267,000

online holdings

34,528,618

total downloads

Curator **Steffi Ickert-Bond** and her colleagues have taken a closer look at the opportunities and challenges these new data provide in their paper *Collections-based systematics: Challenges, opportunities and outlook for 2050*, which will be featured on the cover of the *Journal of Systematics and Evolution* in November 2015. Their call is for a new global Biodiversity CyberBank, as well as a World Organization of Systematic Biology to lead major initiatives, and they outline a new workflow for taxonomic monographs.

Students in the Herbarium continue to have a strong presence at local, national, and international meetings. Undergraduate student **Margaret**

Oliver presented her research on dwarf rosebay (*Therorhodon* – Ericaceae) and **Mackenzie Stamey** presented her research on the *Cryptogramma crispa* (Pteridaceae) complex at the annual meeting of the Botanical Society of America in Boise, along with graduate student **Stephany Jeffers**, who presented her thesis research on spring beauty (*Claytonia*, Montiaceae) and collections manager and Ph.D. student **Jordan Metzgar**, who presented his dissertation research on parsley fern diversification (*Cryptogramma*, Pteridaceae).



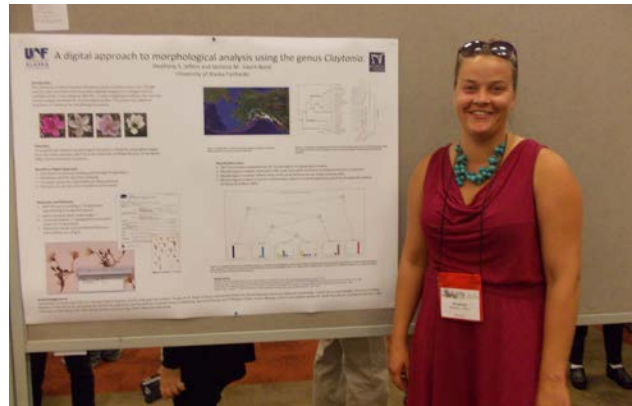
Herbarium

Additional posters presented included research led by Curator Ickert-Bond on genome evolution in *Ephedra* in collaboration with colleagues from Royal Botanic Gardens Kew and Munich University, as well as a collaborative project on her research on grapes and the educational module using coal ball peels derived from her participation in AIM-UP! Student travel to this meeting was supported by travel grants from the UAF College of Natural Science and Mathematics, as well as from the American Society of Plant Taxonomists.

Congratulations to our recent herbarium grads! Two of our digitization team of undergraduate students graduated from UAF in Spring 2015, **Teagan Siekawitch** (B.S.) and **Kyle Moehlin** (B.S.). Stephany Jeffers defended her M.S. thesis *Spring Beauty (Claytonia) in Beringia: new evidence from morphometrics and phylogenetic analysis* in December 2014 and graduated in the spring. She worked as a teaching assistant for Systematic Botany BIOL F331 and has since been working as a botanist/biotech for the Soil Survey Crew of the National Resource Conservation Service (NERC).

CLOCKWISE FROM TOP LEFT: Stephany Jeffers discussing her poster on *Claytonia* morphometrics at Botany 2014 in Boise, Idaho. Margaret Oliver discussing her poster on *Therorhodon* at Botany 2014 in Boise, Idaho. Photos by Steffi Ickert-Bond. 53rd National Junior Science and Humanities Symposium in Hunt Valley, Maryland. From left: West Valley High School science teacher Gregory Kahoe, Petersburg High School student Ian Fleming, West Valley student Michael Kaden-Hoffmann and Alaska Statewide High School Science Symposium Director Abel Built-Ito. Photo courtesy Abel Built-Ito.

The Herbarium also continues to expand its role in explaining scientific discoveries through public education. By engaging Yukon-Koyukuk School District teachers with hands-on science activities based in collections during a professional development workshop at the museum, the organizers highlighted the importance of museum and university collections to build content knowledge and create excitement for possible career paths for rural students. The project was part of the Alaska Literacy Project (aSLP) led by **Ute Kaden** of UAF's School of Education.



To prepare the next-generation systematists, the Herbarium welcomed West Valley High School student **Michael Kaden-Hoffmann** into our lab to work alongside undergraduate students Margaret Oliver and graduate student Jordan Metzgar to generate DNA sequences, review herbarium specimens, and use phylogenetic analysis to test the number of species in dwarf rosebay. His presentation at the Alaska Statewide High School Science Symposium (AKSHSS) won fourth place overall and was selected to represent AK at the National Junior Science and Humanities Symposium (JSHS) in Hunt Valley, Maryland, where his poster placed fourth among 125 entries. Michael is now attending UAF as a UA scholar.





SUMMER TIME IS FLORA TIME

Curator Ickert-Bond taught the summer session class BIOL F195: Introduction to the Flora of Alaska on the Fairbanks campus. The two-week class included dissection and keying of common plants in the Interior as well as two field trips. Students became familiar with the main characteristics of common plant families encountered in the Interior and were able to apply knowledge gained during two field trips, one to Smith Lake and one to Murphy Dome. Finding the elusive moonwort *Botrychium*, a fern genus in the family Ophioglossaceae, along Murphy Dome Road was a special treat, even for the instructor. It was a fantastic experience after teaching Systematic Botany in the spring semester using only pressed specimens. Ickert-Bond said going out in the field allowed the Interior to show off its best side with lots of spectacular blooms and hidden treasures in the form of orchid species, morels, legumes, sunflowers, members of the rhubarb families, and, of course, grasses and sedges.

TOP TO BOTTOM: Dimorphic leaves of two moonwort *Botrychium* species growing along Murphy Dome Road.

Photo by Steffi Ickert-Bond. Unique lamellate inflorescence of *Pterisanthes stonei* with the grapes inserted on the lamellate inflorescence. Photo by Jun Wen.

PTERISANTHES INFLORESCENCE

Curator Ickert-Bond collaborated with **Jean Gerrath** and **Usher Posluszny** during a weeklong visit in September 2014 at the University of Guelph in Ontario, Canada to work on deciphering inflorescence morphology of *Pterisanthes*, a Malay Peninsula endemic relative of grapes (Vitaceae). They documented inflorescence development from initiation to maturation based on original field-collected material from Malaysia by Smithsonian collaborator Jun Wen, now in cultivation at the Smithsonian Institution greenhouse forming the basis for this developmental study.

The study employed epi-illumination microscopy, a form of light microscopy in which the light source is above the object illuminating the object by reflected light and providing increased depth of field without the fixation steps needed to gain similar image depth by Scanning Electron Microscopy. The grape team has completed an extensive analysis of the development of this peculiar inflorescence and established its derivation from another grape relative, *Ampelocissus*. This has enhanced our understanding of inflorescence evolution in the economically important grape clade of Vitaceae. The work will appear in the prestigious *Botanical Journal of the Linnean Society* in 2015.





Herbarium

RIGHT: Herbarium Collection Manager Jordan Metzgar on stage presenting his research at the 13th Smithsonian Botanical Symposium and Next Generation Pteridology fern conference in Washington, D.C. Photo courtesy Jordan Metzgar.

BELOW, CLOCKWISE FROM TOP: Kids paint specimen sheets during the 2014 Halloween at the Museum. Photo by Steffi Ickert-Bond. Fern Foray attendees identifying the *Dryopteris* species in Scott's Run Nature Preserve. Photo by Jordan Metzgar. Jacobs's ladder - *Polemonium pulcherrimum* (Polemoniaceae) on Murphy Dome. Photo by Steffi Ickert-Bond.



NEXT-GEN PTERIDOLOGY

Herbarium Ph.D. candidate Jordan Metzgar attended the 13th Smithsonian Botanical Symposium and Next Generation Pteridology fern conference in Washington, D.C. in June 2015. This was the first international fern conference in eleven years, and Jordan was able to present his research on the biogeography of the parsley ferns (*Cryptogramma*) at the conference. More than 200 researchers from 29 countries on six continents presented the latest findings on fern ecology, evolution, systematics, physiology, and more at the conference. The meeting was held at National Museum of Natural History on the National Mall. Workshops on fern ecology, next-generation DNA sequencing, and online species identification keys were also offered by leading experts. The conference culminated with a fern foray exploring the local fern diversity at Great Falls Park and Scott's Run Nature Preserve.

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Stacy Studebaker
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Herbarium

CONFERENCE PRESENTATIONS

Heath, T, EA Lacey, **SM Ickert-Bond**, SV Edwards, **KC Bell**, and JA Cook. 2014. AIM-UP! Museum-Based approaches to increasing core competencies in undergraduate education. Society of Vertebrate Paleontology, Berlin, Germany.

Ickert-Bond, SM. 2015. Systematics meets ecology, biogeography and genomics: understanding plant diversity in *Ephedra* and Vitaceae through space and time. University of Hamburg, Biozentrum Klein Flottbek.

Ickert-Bond, SM, A Sousa, M Ya, I Leitch, J Pellicer. 2014. The evolution of genome size in the gymnosperm genus *Ephedra*: Flow cytometry and new chromosome counts support high levels of polyploidy. Botany 2014, Boise, ID.

Ickert-Bond, SM, JS Metzgar, H Mori, and KB Pigg. 2014. BACK: Biodiversity Assessment using Coal “Kugeln” (Coal Balls). Botany 2014, Boise, ID.

Jeffers, S and **SM Ickert-Bond**. 2014. A digital approach to morphological analysis using the genus *Claytonia*. Botany 2014, Boise, ID.

Jeffers, S and **SM Ickert-Bond**. 2015. A digital approach to morphological analysis using the genus *Claytonia*. Midnight Sun Science Symposium, Fairbanks, AK.

Metzgar, JS and **SM Ickert-Bond**. 2014. From eastern Asia to North America: historical biogeography of the parsley ferns (*Cryptogramma*). Botany 2014, Boise, ID.

Metzgar, JS and **SM Ickert-Bond**. 2015. Geographical patterns in the diversification of the parsley ferns (*Cryptogramma*) indicate strong glacial influence. Midnight Sun Science Symposium, Fairbanks, AK.

Metzgar, JS, KM Orndahl, and **SM Ickert-Bond**. 2015. Integrating ancestral area reconstruction and ecological niche modeling to assess biogeographical patterns in the parsley ferns (*Cryptogramma*). Next Generation Pteridology, Washington, D.C.

Oliver, MG, JS Metzgar, and **SM Ickert-Bond**. 2014. Morphologically diverse but with surprisingly little genetic structure: the evolutionary history of three closely related species of *Therorhodion*. Botany 2014, Boise, ID.

Oliver, M and **SM Ickert-Bond**. 2015. The evolutionary history of three closely related species of *Therorhodion* (Ericaceae): out of Asia and eastward migration across both the Aleutian chain and the Bering Land Bridge. Midnight Sun Science Symposium, Fairbanks, AK.

Stamey, MR, JS Metzgar, and **SM Ickert-Bond**. 2014. Autopolyploid origin of the octoploid Turkish parsley fern (*Cryptogramma bithynica*): Insights from chloroplast and nuclear markers. Botany 2014, Boise, ID.



CLOCKWISE FROM TOP LEFT: Showy Alaska Wild Iris (*Iris setosa*) specimen photographed along Murphy Dome Road in Fairbanks. Dissected material of Alaska Wild Iris shows 3-carpellate fruit with axile placentation and numerous ovules. Photos by Steffi Ickert-Bond. Herbarium Curator Steffi Ickert-Bond presents a poster at the Botany 2014 conference in Boise, Idaho. Photo by Margaret Oliver.



Herbarium

Alaska teachers get hands-on lesson in science resources

In the spring of 2015, at a professional development seminar on the University of Alaska Fairbanks campus, 12 teachers from the state's rural districts crowded into the Creativity Lab at the University of Alaska Museum of the North. They looked at the museum's educational resources kits and learned how to use a plant press. The teachers were students for the day, there to discover new ways to engage their own pupils in learning about science. UAMN Herbarium Curator **Steffi Ickert-Bond** hoped the seminar is just a starting point.

“Many teachers are not aware of the content contained in museum collections.”

“As curators and museum scientists, we need to work better at mobilizing the amazing information found in museum collections, such as data on environmental history, species distributions, climate change, and genomics.”

Museum collections are a great way to engage students, Ickert-Bond said. They can be an entryway to learning about natural history and the natural world as a whole. The collections allow students to study on a range of scales, from individual genomes to whole organisms, and even entire ecosystems. And they let students gain insight into the integrative perspectives of biodiversity.

Modern museum collections even bring an element of web discovery to the classroom with powerful databases that allow teachers to engage students with the objects even if the class does not have access to the physical version.

CLOCKWISE FROM TOP: A participant uses a compound microscope to look at cell patterns during a stomatal density module at the professional development seminar at the museum. Jacob P. Anderson's book *Flora of Alaska* is based on original specimens archived at the Herbarium, along with his field notes and line drawings that generated the wooden blocks used for printing. Participants were able to examine museum objects. Photos by Ute Kaden.





Herbarium

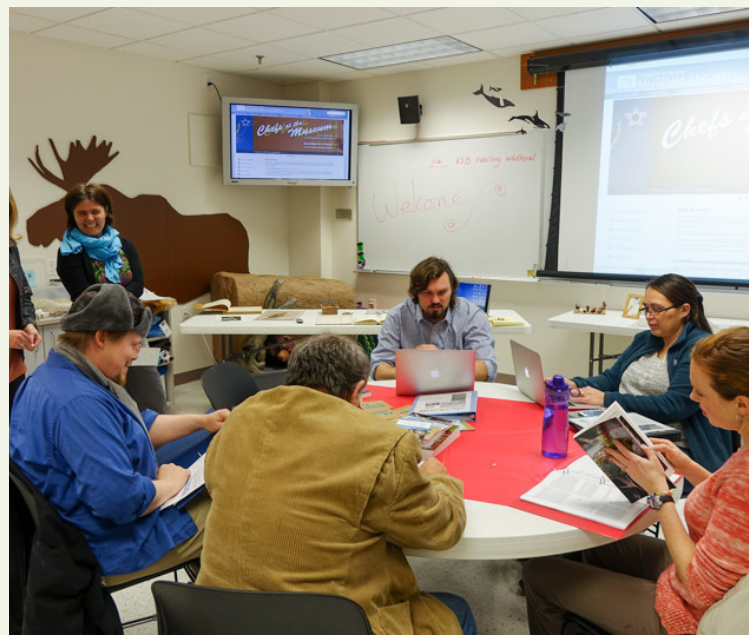


Ute Kaden is an assistant professor of secondary education at UAF. One of her passions is helping teachers find the resources they need to excel at their jobs. To that end, she is one of the lead researchers behind the teacher professional development model called the Alaska Science Literacy Project (aSLP), which is supported by the UAF-School of Education and the Yukon Koyukuk School District (YKSD).

“This workshop gave me the opportunity to learn about resources the museum provides for my classroom,” Denali teacher Tricia Turley said. “My kids will love to use the herbarium press to collect local plants and contribute to ARCTOS. This is real place-based science. I really enjoyed visiting with the curators of the museum and learning about the various science projects going on in Alaska.”

Ickert-Bond says this is only the beginning of possible collaborations among the museum, UAF’s School of Education, and teachers across the state.

“We have developed educational resources, such as lesson plans, that directly incorporate specimens either in the form of educational kits (hands-on learning) or digital media, which provide examples of active, inquiry-driven, experiential learning. These activities also provide background, a list of terms and definitions, and, as such, aid in the acquisition of scientific content knowledge.”



PHOTOS THIS PAGE: Workshop participants pressed specimens. They were provided presses to take back to each of their schools. Photos by Ute Kaden.



Research and Collections

Mammalogy



Mammalogy



OVERVIEW

The mammal collection continued its significant growth in terms of specimens and personnel, with over 2,000 specimens added and several new students joining the department. Continuing grants from the Alaska Department of Fish and Game and the National Park Service funded fieldwork on mammals from Alaska and the Pacific Northwest, and funding from the National Science Foundation supported research on walrus and Malagasy mammals.

New graduate student **Katie Rubin** began a long-term study of marmot hibernation. Curator **Link Olson** and Ph.D. student **Katie Everson** traveled to Madagascar to attend the 12th African Small Mammal Symposium and conduct research in the collections at the University of Antananarivo.

The lab was particularly active in presenting research results to a wide range of audiences, delivering 16 presentations in Madagascar; Brazil; Chicago, IL; Edmonton, Alberta; Ithaca, NY; and throughout much of Alaska.

CLOCKWISE FROM TOP LEFT: Mammal Collection Manager Aren Gunderson samples bone from a seal skull for a specimen loan. The museum's mammalogy field crew hiking on Wickersham Dome. Photos by Kyndall Hildebrandt. Undergraduate exchange student Mahaut Sorlin working on a research project studying marmots. Photo by Link Olson. Technician Jonathan Nations and PhD student Katie Rubin salvage a beluga whale specimen from the beach in Cook Inlet. Photo by Aren Gunderson.

PREVIOUS PAGE: A hoary marmot, captured and released at Wickersham Dome, with its new ear tag and a surgically implanted radio transmitter. Photo by Kelsey Gobroski.





Mammalogy



Two new species of bats have been confirmed as Alaska residents, thanks in part to research conducted on specimens preserved among the collections at the UA Museum of the North.

The number of bat species known from Alaska has increased from six to eight with the publication of two studies in a special issue of the journal *Northwestern Naturalist* devoted to bat research in Alaska and Northwestern Canada.

Mammal Curator **Link Olson** (who co-edited the special issue), Collection Manager **Aren Gunderson**, and two other authors re-examined specimens collected in the early 1990s from extreme Southeast Alaska and deposited in the UAMN mammal collection.

Originally identified as the relatively common little brown Myotis (*Myotis lucifugus*), which is both Alaska's and North America's most broadly distributed bat, the specimens bore some resemblance to the Yuma Myotis (*M. yumanensis*), previously undocumented in Alaska but known from western British Columbia.

The two species are notoriously difficult to tell apart, despite being only distantly related, and are frequently misidentified even by experts. Using DNA extracted from dried skins, Olson and Gunderson confirmed that six specimens were actually *M. yumanensis*.

In a separate paper, Karen Blejwas of the Alaska Department of Fish and Game and two coauthors reported the first records of hoary bats (*Lasiurus cinereus*) from Southeast Alaska based on recordings of echolocation calls. Like the Yuma Myotis, hoary bats are known from British Columbia but were previously undocumented in Alaska.

Whether the two species are relative newcomers to the state or are longtime residents that have simply escaped attention until now is impossible to determine at this point, but scientists clearly have much to learn about Alaska's bats.

LEFT TO RIGHT: A little brown myotis captured near Skagway, Alaska carries a numbered wing band and a radio transmitter. The antenna is visible extending from the back. Among these bat skulls in the UAMN mammal collection, A and C show the steeper forehead slope of the Yuma myotis, while B and D have the shallower slope of the little brown myotis. Mammals Curator Link Olson removes a little brown bat from a mist net near Dyea, Alaska. UAMN photos.

ALASKAN BATS



Mammalogy

STAFF LISTING

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Catherine Rubin	Graduate Student Assistant
Rachel Noriega	Student Assistant
Kristen Scholten	Student Assistant
Allison Schultz	Student Assistant
Mahaut Sorlin	Student Assistant
Krystal Fales	Technician
Tristan Glowa	Technician
Jon Nations	Technician

RESEARCH ASSOCIATES AND AFFILIATES

Kimberlee Beckmen
Allison Bidlack
Karen Blejwas
Travis Booms
Rich Brenner
John J. Burns
Joseph A. Cook
Nikolai Dokuchaev
Lara Horstman
Brandy Jacobsen
Thomas Jung
Hayley Lanier
Stephen O. MacDonald
Thomas McDonough
Nicole Misarti
Lori Quakenbush
Eric Sargis
Gay Sheffield
Dominique Watts
Neal Woodman

PRESENTATIONS

Cason, MM, T Booms & LE Olson. 2015. Distribution and phylogeography of the Alaskan Hare. Talk, Annual Meetings of the Alaska Chapter of The Wildlife Society, Juneau, AK.

Everson, KM, SM Goodman, V Soarimalala & LE Olson. 2015. Phylogeny, taxonomy, and biogeography of Madagascar's tenrecs (Mammalia: Tenrecidae). Evolution meetings, Guarujá, Brazil.

Everson, KM, SM Goodman, V Soarimalala & LE Olson. 2015. Species delimitation using Next-Generation Sequencing in Madagascar's shrew tenrecs (Microgale). 12th African Small Mammal Symposium, Mantasoa, Madagascar.

Gunderson, AM & LE Olson. Arctos as a database management system for vertebrate specimens and images. iDigBio Strategies for Vertebrate Digitization Workshop, Ithaca, NY.

Gunderson, AM, CE Rubin, & LE Olson. 2015. The University of Alaska Museum's marine mammal collection: a rapidly growing and increasingly utilized scientific resource. Annual Meetings of the Alaska Chapter of The Wildlife Society, Juneau, AK.

Olson, LE. 2014. A reluctant marmoteer in the 20th and 21st centuries. UAF IAB Life Sciences Seminar, Fairbanks, AK.



LEFT: A camera-trap image of a hoary marmot at its burrow on Wickersham Dome.



Mammalogy



TENREC EVOLUTION RUN AMOK

UA Museum of the North mammal curator Link Olson and PhD student Katie Everson traveled to Madagascar in the Spring of 2015 to study tenrec specimens in the collection at the University of Antananarivo. Olson has authored several papers that describe new species of tenrecs using genetic data. Tenrecs belong to a curious superorder of animals called the Afrotheria, which includes a variety of bizarre mammals, such as elephants, armadillos, manatees, and golden moles. Their common ancestor is thought to have originated in Africa. All 35 species are found only in Madagascar.

Ironically, most tenrec specimens are housed in U.S. museums, primarily the Field Museum in Chicago, the American Museum of Natural History in New York, and the National Museum of Natural History at the Smithsonian in Washington, D.C. This is largely due to a preponderance of foreign researchers working in Madagascar for much of the late 19th and 20th centuries.

Over the past 20 years, Malagasy students trained in conservation biology and systematics have developed their own rigorous field and lab-based research. Now, much of the material collected during these expeditions either stays in country or is repatriated after being prepared in foreign countries, Olson said.

“Many of the specimens we were studying there were collected by me between 1995 and 2003 and made a round trip from Madagascar to Chicago’s Field Museum, where they were prepared as voucher specimens, and back. This most recent trip marked the 20th anniversary of my first visit to Madagascar, and I’ve been back many times.

“I became interested in tenrecs when I realized how diverse they are in terms of their ecology, physiology, morphology, and body size. They represent a spectacular example of adaptive radiation (similar to Darwin’s finches) and yet very little was known about them when I began my studies. It was an incredible opportunity in hindsight and has kept me busy for the past 20 years, with no end of interesting questions left to answer.”

Olson said the work has connections to research in Alaska. “I’ve had another student here work on skeletal and behavioral adaptations to climbing in Alaska’s small mammals, something we’re very interested in doing in tenrecs.

TOP: Link Olson and Katie Everson in the mammal collection at the University of Antananarivo in Tana, Madagascar examine tenrec skulls. Photo by Aude Lalis.

BOTTOM: Clockwise from upper left: lesser long-tailed shrew tenrec; lesser hedgehog tenrec; tail-less tenrec; lowland streaked tenrec; large-eared tenrec; mole-like rice tenrec; and barbed spine of a highland streaked tenrec. Photos by Link E. Olson and Jonathan L. Fiely.





Mammalogy

We know several species can climb trees since we trap them above ground, but we don't know how they climb. Do they use their tails? Can they descend head first, a difficult feat requiring major modifications to the ankle joint? Have climbing adaptations independently evolved multiple times in tenrecs, a phenomenon known as convergence?"

When the common ancestor of all living tenrecs reached Madagascar from Africa 33 million to 48 million years ago, an estimate based on genetic dating and fossil calibrations, there were no other small mammals on the island. Tenrecs quickly evolved to fill the many open niches.

This is the classic definition of adaptive radiation, Olson said. "We often see cases of convergent evolution within such radiations. That is something we're investigating in tenrecs."

The research has shown, for example, that skeletal adaptations for digging have evolved at least three times and are in the process of being lost, known as reversal, in at least one lineage. Researchers have also learned that tail length has independently increased and decreased several times. One species has more vertebrae in its tail than any other mammal, living or extinct.

Olson said, "In tenrecs, evolution seems to have truly run amok."

Olson, LE. 2015. Alaska's alpine marmots and climate change. Wrangell Institute for Science and Environment Speaker Series, Copper Center, AK.

Olson, LE. 2015. Alaska's amazing marmots: knowns and unknowns. UAF Summer Sessions' Discover Alaska series, Fairbanks, AK.

Olson, LE. 2015. Alaska's marmots: known knowns and unknown knowns. University of Alaska Museum of the North Discovery Series, Fairbanks, AK.

Olson, LE. 2015. Evolution, phylogeography, and 'bibliogeography' of North America's most broadly distributed alpine mammal, the hoary marmot. University of Alberta Ecology and Evolution Seminar Series, Edmonton, Alberta.

Olson, LE. 2015. Lab sampler: Something Old World, something New World. UAF IAB Life Sciences Seminar, Fairbanks, AK.

Olson, LE. 2015. Marmots of Alaska. Prince William Sound Community College seminar, Valdez, AK.

Olson, LE. 2015. Phylogenomics, biogeography, and taxonomic recalcitrance of North America's 'alpine' marmots. A. Watson Armour Seminar Series, The Field Museum, Chicago, IL.

Olson, LE, KM Everson, V Soarimalala & SM Goodman. 2015. Phylogeny and biogeography of tenrecs revisited again. Talk, 12th African Small Mammal Symposium, Mantasoa, Madagascar.

Rubin, CE & LE Olson. 2015. Phenological plasticity in an 'alpine' hibernator, the Hoary Marmot. Talk, Annual Meetings of the Alaska Chapter of The Wildlife Society, Juneau, AK.

Sorlin, MV & LE Olson. 2015. Species limits in the Hoary Marmot and the threatened Olympic Marmot. Poster, Annual Meetings of the Alaska Chapter of The Wildlife Society, Juneau, AK.



Research and Collections

Ornithology



Ornithology

YEAR IN REVIEW

1,500 specimens This was a huge year for the collection. With a grant from the National Science Foundation, we installed the largest equipment upgrade the collection has ever had in the form of new cabinets and a compactor system. Then we moved the whole collection, parts of it twice, out of the area and back in again.

We also added 1,500 new specimens to the collection. Our research associates donated a large number of important specimens. Department staff, students, and research associates produced seven publications. Fieldwork took staff to Kodiak, Hyder, the Taylor Highway, and Interior Alaska. We also had an excellent group of students and volunteers working with us during the year.

As ever, we extend our most sincere thanks to our students, volunteers, and the Friends of Ornithology for their ongoing support.

STAFF LISTING

Kevin Winker 474 7027	Curator kevin.winker@alaska.edu
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Rebecca Cheek	Student Assistant
Sonya Edwards	Student Assistant
Fern Spaulding	Student Assistant

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Johannes Erritzoe
Daniel Gibson
Kevin McCracken
Rose A. Z. Meier
Christin Pruett
Heinrich Springer



ABOVE RIGHT, TOP TO BOTTOM: Curator Kevin Winker prepares bird specimens during the museum's Open House in January 2015.

Photo by Theresa Bakker. Museum student assistants demonstrate the difference between the wingspread of a swan and a little brown bat in the ornithology lab. Photo by Kevin Winkler.

ABOVE LEFT & PREVIOUS PAGE: Field work took members of the ornithology department to a variety of locations during this fiscal year, including Hyder and the Alaska Peninsula.

Photos by Jack Winthrow.

Gifts to the Collections

The museum's collections have grown through decades of fieldwork and research, careful cultivation and the generosity of people whose passion for science, culture and education leads them to support the museum's mission. We are grateful to our donors for their contributions during FY15.

GIFTS TO ARCHAEOLOGY

Pete Bowers
Sharon Gronholdt-Dye
Evan Nelson

GIFTS TO EARTH SCIENCES

Ronald Reisner

GIFTS TO EDUCATION

Anonymous: Caribou skull with antlers
Bill Baird: Beaver pelt
Lourdes Hernandez Bernal: Whale vertebra and fused cervical vertebra
Janet Taylor: Birch basket and cedar plank

GIFTS TO ENTOMOLOGY

W. S. Armbruster: Bee voucher specimens from Armbruster & Guinn, 1989
A. Baltensperger: Three jars of bulk samples of pitfall collected inverts
D. Bogan: Denali National Park Bioblitz specimens of aquatic insects, 2014
M. Bowser: *Cixius meridionalis* transferred from KNWR collection
D. M. Collet: Three boxes of pinned Hymenoptera (Torymidae and Platygastriidae) from the research collection of Dominique Collet

D. M. Collet: Seven drawers of Hymenoptera & Diptera
D. Dragoo: Specimens from Chamisso Island, AK
B. Fleshman: Misc. identified spiders and other taxa collected in 2007-2008
V. Forbes: Beetle specimens collected from Quinhagak in 2014 to help identify fossil fragments
J. C. Hagelin: Insect samples from olivesided flycatcher habitat
T. Hansen: Specimens from Porcupine Creek, Etolin & Chichagof Island, Alaska
J. Hudson: Five *Cicindela oregona* from Gustavus
C. A. Knight: Samples from peony fields collected by AK Division of Agriculture
J.R. Labonte: Phlaeopterus specimens
J. R. Labonte: Phlaeopterus collected in 2014 from MT and ID
T. Lewis: Voucher specimens of aquatic inverts in vials from lakes in Yukon Flats, 2010-2012
R. Liebermann: 2014 Malaise trap samples from USFWS NWRs
N. Lisuzzo: Misc. beetles from 2014 Fairbanks Forest Health Protection sampling by US Forest Service
M. McDermott: Strepsipteran from USGS project on Seward Peninsula
E. L. Mockford: Pair of *Mesopsocus unipunctatus*
L. Mullen: Denali Bioblitz specimens, 2014
L. Mullen: Phlaeopterus collected by Logan Mullen and Sarah Meierotto
L. E. Olson: Phlaeopterus specimens
J. J. Rykken: Phlaeopterus spp
A. Shavrin: Lesteva specimens donated to UAM insect collection
S. Shigehiko: *Lyrosoma pallidum* (probably) in pure alcohol from Japan
J. A. Slowik: Specimens from Chichagof Island, AK
A. Soper: Lathrolestes vouchers from biocontrol release to control amber marked birch leafminer

GIFTS TO ETHNOLOGY & HISTORY

Alaska Film Archives: Film camera purportedly used by Slim Williams during the 1939 motorcycle ride from Alaska to Chicago
Carl S. Benson: Items found at the French Central Station in Greenland
Margaret Billington: Arctic Winter Games pins
William Daily: Items associated with Arthur Daily and Dr. Joseph Herman Romig
Jerry Deaton: WWII mittens and liners
Horton Ensley: Pocket watch owned by Luther C. Hess, 1931
Matthew Gilbert: Tukudh (Gwich'in) Bible
Sharon Gronholdt-Dye: Yup'ik story knife
Laurie King: Inupiaq doll made ca. 1936
DeVonne Koppenberg: Items of military clothing owned by her late husband
Pat McKeown: WWII-era basket covered bottle
Evan L. Nelson, Jr.: Major collection of artifacts (ethnological, archaeological, and earth sciences) relating to his time living and exploring in Alaska
Ed Ruckstuhl: Russian lacquer boxes
Mary Beth Smetzer: Items collected at the Fort Yukon potlatch for Chief Esias Loola
Page Spencer: Accessories associated with a kayak donated by David Spencer in 1965

UAF Alaska and Polar Regions: Items associated with Falcon Joslin and Eddy Davis
UAMN Exhibits & Design Department: Models of the University of Alaska Museum of the North

Candy Waugaman: Board games, tourist art

Sandy Williams: Items collected by her father, an early Naval photographer in Barrow

GIFTS TO HERBARIUM

Bruce Bennett: Vascular specimens (85)
Kenai Fjords National Park: Cryptogam specimens (612)
Kodiak NWR: Vascular plant specimens
Parameters Plus Annex Creek (three studies): Vascular plant specimens
Snake River Plains Herbarium: Vascular specimens (10)
Stanley Welsh Herbarium: Vascular specimens (100)
Tongass National Forest: Lichen specimens (3598)
UAAH: Vascular specimens (94)
UC Berkeley: Ephedra specimens (8)

UCR: Ephedra seeds

University of Montana Herbarium: Vascular specimens (9)

Yukon Charley National Caribou: Vascular plant specimens (216)

GIFTS TO MAMMALOLOGY

The mammal collection would like to thank these groups and individuals for their donations.

Alaska Department of Fish and Game: Kimberlee Beckmen, Stephen Bethune, Karen Blejwas, Travis Booms, Anna Bryan, John J. Burns, Kevin Colson, Bob Hunter, Tom Paragi, Karolina Pavic, C. Tom Seaton

Alaska Veterinary and Pathology Services: Kathy Burek, Dylan Peterson, Andrew Baltensperger

Dean Cluff: Environment and Natural Resources, NT, CA

Spencer P. DeWaele: US Army, Fort Wainwright

Patrick Lampi: Alaska Zoo

Andrew J. Macguire: University of New Hampshire

Barbara Mahoney: National Marine Fisheries Service

National Parks Service: Melanie Flamme, Jaime Welfelt

Thomas Norton: University of Alabama Birmingham

Jesika Riemer: University of Alaska Anchorage

Ken Severin

Gay Sheffield: University of Alaska Fairbanks

Kristin Simac: US Geological Survey

Jan Straley: University of Alaska Southeast

US Fish and Wildlife Service: Dom Watts, Kristin Worman

USDA Wildlife Services: David Sinnett, Michael Stevens

Jack J. Withrow

GIFTS TO ORNITHOLOGY

Specimens from **Johannes Erritzoe**, **Kevin McCracken**, and **Heinrich Springer**

University Instruction

UAF COURSES

The museum's curators serve joint appointments as faculty members at the University of Alaska Fairbanks. During FY15, museum curators and other staff taught the following courses:

ANTH415 – Geoarchaeology
 ANTH/FILM460 – Cross Cultural Filming
 ART 200XH – Honors Art Appreciation
 ART 490/690 – Special Topics: Economics of Art
 BIOL195 – Introduction to Alaska's Mammals
 BIOLF195 – Introduction to the Flora of Alaska
 BIOLF331 – Systematic Botany
 BIOL615 – Systematic and Comparative Biology
 BIOL644 – Genomics of (Mal)adaptation
 EBOT100 – Introduction to Ethnobotany
 ENG488 – Dramatic Writing
 ENG692 – Advanced Proposal Writing
 ENG688 – Writing for Film and Television
 FISH/BIOLF427 – Ichthyology
 GEOS106 – Life in the Age of Dinosaurs
 GEOS317 – Paleontological Research and Laboratory Methods
 MRAP 288/488 – Museums Research Apprenticeship Program

BELOW: Curator Pat Druckenmiller talks to visitors about Alaska's dinosaurs at the museum's Open House.

Photo by Theresa Bakker.



STUDENTS

Archaeology

Student Employees:

Katie Antal
 Evie Combs
 Stormy Fields
 Jayme Gafford
 Tyler Graham
 Cassidy Phillips
 Chelsea Winter

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Tom Allen (BA, UAF)
 Patrick Charapata (MS, UAF)
 Casey Clark (PhD, UAF)
 Patrick Hall (MA, UAF)
 Joe Keeney (MA, UAF)
 Francois Lanoe (PhD, University of Arizona)
 Katherine Mulliken (MA, UAF)
 Angelique Neffe (PhD, Universite Paris 1 Pantheon-Sorbonne)
 Constance Pirlot (MA, Universite Paris 1 Pantheon-Sorbonne)
 Melinda Relph (BA, UAF)

Earth Sciences

Katherine Anderson
 Bobby Ebelhar
 Meghan Shay
 Eliza Rorabaugh
 Heather MacFarlane
 Jacob VanVeldhuizen

Entomology

Marisol Bastiani
 Lacey Broskey
 Samantha Burd
 Jennifer MacDougall
 Megan McHugh
 Sarah Meierotto
 Nolan Rappa
 Jayce Williamson
 Mary Wyatt

Ethnology & History

Mahriena Ellanna
 Della Hall
 Kirsten Olson
 Rebekah Ryan
 Mackenzie Stamey

Film

Megan Bush
 Daniel Chein
 Makenzie Denmart
 Joel Forbes

Fine Arts

Teal Booth
 Ryota Kajita
 Katlian Stark

Fishes

Sierra Corsetti
 Isaac Firesmith
 Emily Lescak
 Sarah Lilly
 Joshua Ream
 Katie Shink
 Kristen Williams

Herbarium

Adam Bentele
 Stephany Jeffers
 Jordan Metzgar
 Kyle Moehlin
 Margaret Oliver
 Lisa Strecker

Maura Sullivan
 Teagan Siekawitch
 Maura Sullivan

Mammalogy

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 Krystal Fales
 Tristan Glowa
 Rachel Noriega
 Catherine Rubin
 Kristen Scholten
 Allison Schultz
 Mahaut Sorlin
 Jon Nations

Ornithology

Kyle Campbell
 Rebecca Cheek
 Sonya Edwards
 Jessica McLaughlin
 Fern Spaulding

Exhibits, Design, & Digital Media

Sarah Day
 Nathan Feemster
 Jasmin Johnson

STAFF PROFESSIONAL SERVICE

Alaska Checklist Committee
 American Ornithologists Union (AOU), council member
 American Society of Ichthyologists and Herpetologists Board of Governors
 Conservation of Arctic Flora and Fauna Expert Group, member
 Fairbanks North Star Borough Historic Preservation Commissioner
 Flora of North America, board member
 The Coleopterists Society, president-elect
 Geist Fund, chair
 Journal of Vertebrate Paleontology, editorial board member
 Museums Alaska Board of Directors President
 University of Alaska Press, board member
 Western Museums Association Board of Directors, member

Jack Withrow

Kevin Winker

Andres Lopez

Steffi Ickert-Bond

Angela Linn

Steffi Ickert-Bond

Derek Sikes

Pat Druckenmiller

Pat Druckenmiller

Angela Linn

Kevin Winker

Angela Linn

Field Research



Field Research



ARCHAEOLOGY

Chena Townsite, Fairbanks AK
Denali National Park and Preserve, AK
Fortymile River, Interior AK
Katmai National Park and Preserve, AK
Nenana River Valley, Interior AK
Quartz Lake-Shaw Creek Flats, Interior AK
Sugarloaf Mountain, Healy, AK
Susitna River Valley, Interior AK
Wrangell-St. Elias National Park



ENTOMOLOGY

Adak, AK
Bonanza Creek LTER, AK
Kasatochi volcano, AK
Steese Hwy, AK
Valdez, AK
Wrangell-St. Elias National Park, McCarthy/Kennecott, AK



FILM

Interior Alaska
Kibaya, Tanzania



HERBARIUM

Arizona: Pinal County; Pinal Mts; Pima Co; Santa Catalina Mountains;
Sabino Canyon
California: Riverside Co, Cabazon; Cleveland National Forest;
Ortega Highway; Riverside Co; Whitewater
Utah: Washington Co; Zion National Park
Texas



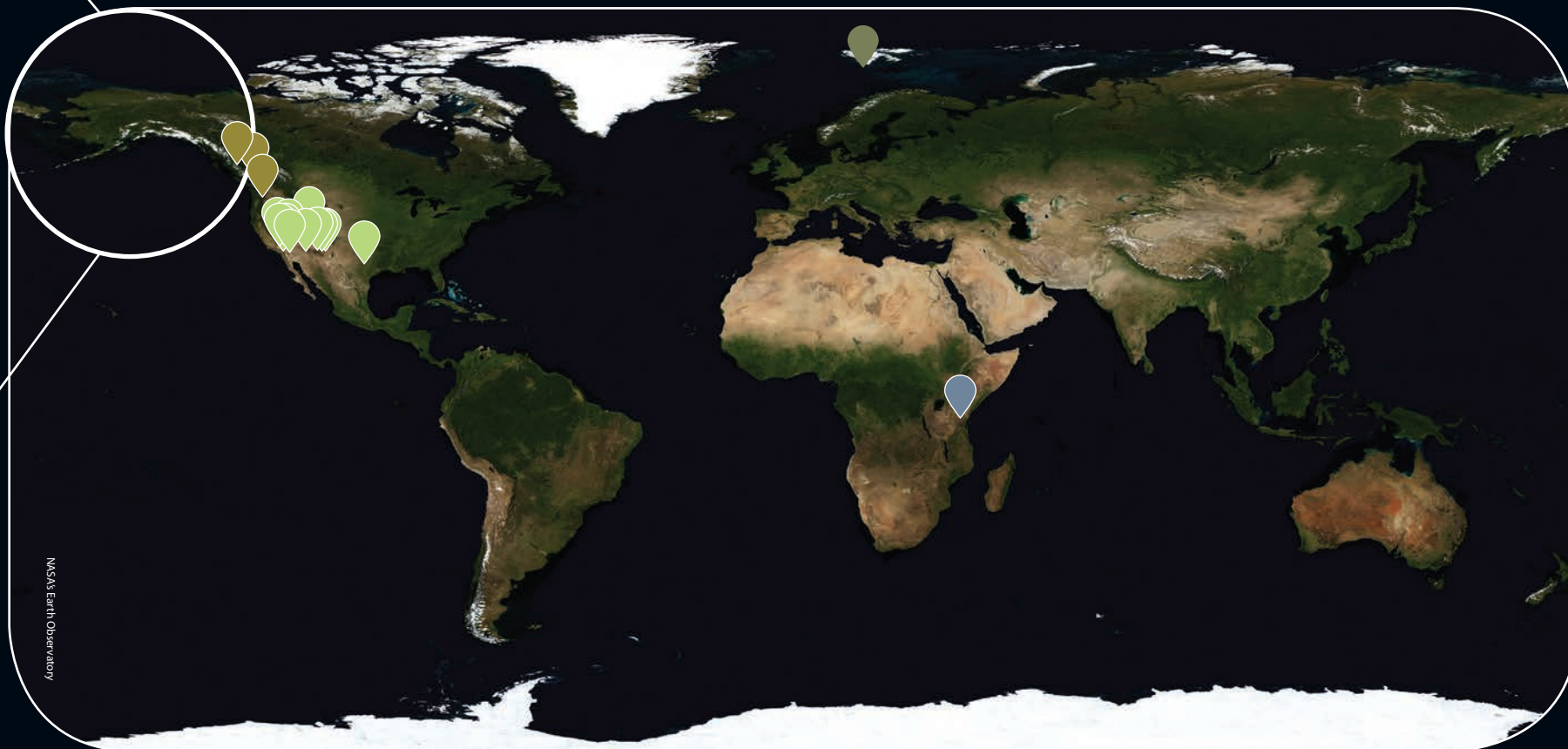
MAMMALOGY

British Columbia Cascades
Dease Lake, B.C.
Fairbanks, AK
Skagway, AK
Washington Cascades (Mts. Adams, St. Helens, and Rainier)
Wickersham Dome, AK



EARTH SCIENCES

Boltodden in eastern Spitsbergen; Svalbard, Norway
Kake, Southeast Alaska
North Slope
Sassendalen, in western Spitsbergen; Svalbard, Norway
Svalbard, Norway
Talkeetna Mountains
Yukon River



Publications by UAMN faculty, staff, and students

AOU Committee on Classification and Nomenclature (**Kevin Winker** and 11 other members). 2014. Fifty-fifth supplement to the American Ornithologists' Union Check-list of North American Birds. Auk 131:CSi-Csxv.

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Kerhoulas, NJ, **AM Gunderson**, and **LE Olson**. In press. Complex history of isolation and gene flow in hoary, Olympic, and endangered Vancouver Island marmots. Journal of Mammalogy.

Kerr, JT, A Pindar, P Galpern, L Packer, SG Potts, SM Roberts, P Rasmont, O Schweiger, SR Colla, LL Richardson, DL Wagner, LF Gall, **DS Sikes**, and A Pantoja. In press. Climate change impacts on bumblebees converge across continents. Science 349(6244):177-180 doi: 10.1126/science.aaa7031.

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Loera, I, **SM Ickert-Bond**, and V Sosa. 2015. Ecological consequences of contrasting dispersal syndromes in New World *Ephedra*: higher rates of niche evolution related to dispersal ability. Ecography 1187-1199. DOI: 10.1111/ecog.01264.

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LEFT TO RIGHT: The low winter sun reflects off the front windows of the museum. Photo by Theresa Bakker. The full moon rises, highlighting the stunning architecture of the museum. Photo by Todd Paris.



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Development

RE-IMAGINING THE GALLERY OF ALASKA

A \$1 million personal gift from longtime University of Alaska Fairbanks supporters **Joe Usibelli** and **Peggy Shumaker** will allow work to begin on renovations to the museum's oldest gallery. The donation means the museum can begin work on an upgrade of the Gallery of Alaska, which was built in 1980 and is the only portion of the museum that was not updated during an expansion completed in 2005.

The gift from Usibelli and Shumaker creates the foundation for the project and its fundraising campaign. When complete, the Peggy Shumaker and Joe Usibelli Gallery of Alaska will have modern lighting and displays that will protect artifacts, along with hands-on elements to make the exhibits an interactive experience for visitors of all ages.

"The Alaska Gallery is part of our home. We make this donation to help create exhibits that protect the fragile and priceless objects on display," noted Shumaker and Usibelli. "We support this fresh Alaska-built gallery that will tell many stories — for Alaskans and for visitors from around the globe."

Usibelli and Shumaker have a longstanding affinity to the university and the museum. Usibelli is a 1959 alumnus and served on the museum's advisory council during the campaign that raised more than \$19 million for the expansion project. Shumaker is a former Alaska Writer Laureate and a professor emerita at UAF. Prior to this gift, the family has donated more than \$4 million to the university via personal, corporate, and Usibelli Foundation gifts.



LEFT: Photo courtesy Joe Usibelli and Peggy Shumaker.

COMMUNITY SUPPORT

The museum relies on partnerships with businesses and donors from the community. These funding sources provide a large portion of our operating budget. Our major donors – **Wells Fargo**, **Saltchuk**, **Flint Hills Resources Alaska**, and the **Fairbanks Daily News-Miner** – support our outreach programs and education efforts.

In FY15, the museum continued to offer free admission to Alaska-based active-duty military personnel and their families, thanks to support from **Wells Fargo**. Thousands of soldiers and airmen took advantage of this opportunity to see our world-class museum and learn about the biology, culture, and history of Alaska.

The museum also continued its tradition of educating the community's school-aged children with docent-led Directed Discovery tours thanks to longtime supporter **Flint Hills Resources Alaska**. Our popular Family Days continued this fiscal year with free admission for children up to 14 years old thanks to support from **Saltchuk**. Finally, the museum is able to tell the community about its programs, events, and research thanks to a continuing ad grant from the **Fairbanks Daily News-Miner**.



Development

CHEFS AT THE MUSEUM

The museum's marketing and visitor services departments worked to design a special event for the community to coincide with the Smithsonian Institution's Museum on Main Street exhibit, *Key Ingredients: America by Food*, at the UAF Community & Technical College in downtown Fairbanks.

Chefs at the Museum on November 15, 2014 featured three key ingredients and the culinary talents of five local chefs, who demonstrated one of their dishes in front of a live studio audience. More than 200 guests sampled the tastings featuring locally-sourced barley flour, beer, and birch syrup.

The panel of judges and the guests each chose their favorites in a variety of categories. The winners included: Jeff Oden, the pick in both the judges' and the peoples' choice categories for best demonstration; Ivory Whitley, the judges' pick for best overall chef and the peoples' choice for best presentation; Darrin Ham and Jeannine Thompson, both honored by the judges for their food presentation; and Joe Hardenbrook, the peoples' choice for best overall chef.

Museum graphic designers **Tamara Martz** and **RJ Mikulski** created a cookbook that features some of the recipes shared by the participating chefs, as well as contributions from museum supporters statewide. You can find that publication on the museum's website:

www.uaf.edu/files/museum/communication/Chefs-Cookbook.pdf

CHEFS

Joseph Hardenbrook of HARD Dining

Darrin Ham of Mise en Place catering

Jeff Oden of Wholee Smokes BBQ

Jeannine Thompson of Alaskana Kitchen

Ivory Whitley of Alaska Coffee Roasting Co.

JUDGES

Gary Black, Fairbanks Daily News-Miner

Karen Wilken, HooDoo Brewing Co.

Dominick Coleman, culinary connoisseur

VENDORS & SPONSORS

Co-op Market

HooDoo Brewing Co.

Sample Alaska

LEFT TO RIGHT: Guests sample the items made by chef Darrin Ham. Museum advocate Don Grey shows his appreciation for the event. Fairbanks' own DJ Double X provided the entertainment for the evening. Photos by Theresa Bakker.



Marketing & Communications



MARKETING PLAN UPDATE

In 2014, a museum marketing consultant completed a wide-ranging study of the UA Museum of the North's marketing activities and advised us on how best to engage the Fairbanks community and the tourists who make up more than 75% of our visitors. This included determining the most effective use of various media and other promotional sources, reviewing visitor experiences, and developing strategic alliances. Since becoming the museums' Marketing & Communications Manager, **Theresa Bakker** has been implementing the new strategies and assessing the goals outlined in the plan.

As it stands, the museum's return on investment is much better than the national average of \$1.92 spent on advertising per visitor. By utilizing a variety of creative and innovative tools in addition to paid marketing outreach, including ads in national magazines and tour guides, the museum has achieved an ROI of \$.58 per visitor. These include the use of social media, strategic media relations with both local and statewide reporters, and partnerships with a variety of federal and state agencies, institutions, and organizations.

MEDIA PRESENCE AND LOCAL SERVICE

Bakker initiated several collaborations with the *Fairbanks Daily News-Miner* to publicize research and programs at the museum. As part of the promotion of the *Museum Discovery Series*, she profiled the featured curators and topics covered in their lectures. Bakker also initiated a monthly column in the newspaper's new Kids & Families section called *Discover with UAMN*. These stories highlight the connections between research and collections at the museum in a fun way, as well as highlighting the events and public programs designed by the museum's education department.

Another goal outlined in the museum's marketing plan directed the museum to develop strategic alliances with the business community and tourism-related organizations. To that end, Bakker joined the Downtown Fairbanks Rotary club and quickly became instrumental in achieving the club's social media needs. She also joined the advertising & public relations committee for Explore Fairbanks, the non-profit organization whose mission is to contribute to the economic well-being of the Fairbanks area by marketing to potential visitors.

Museum curator knows what bugs us

By Theresa Bakker

It's not often a scientist gets to document the recovery of an ecosystem. When Kasatochi—a volcanic island in Southwest Alaska's Aleutian chain—erupted in 2008, the lush seabird paradise was turned into a pile of mud and ash overnight. The Museum of the North's curator of insects knew it could be a valuable opportunity for science.

Derek Sikes had spent a day on the island two months before it erupted. That meant he could compare the island's ecosystem to its pre-eruption condition.

"I first thought it would be years of mud, ash and no life but was surprised to find insect activity within a year of the eruption," he said. "Most, and possibly all, of the species appear to be survivors rather than new colonists. It's an amazing opportunity to see how an ecosystem assembles."

At a Museum Discovery Series presentation on Thursday, Sikes will address the challenges of documenting the untold stories of the



Alaska has more than 600 species of spiders and, contrary to what you might hear, brown recluse spiders have never been found in Alaska.

North. That includes the good and the bad. While insects are the largest consumers of vegetation in Alaska—30 million spruce trees were killed by spruce bark beetles during the 1990s—insects are also a major source of nutrition and instrumental in food production, as well as an indicator of climate.

In the food web, providing a safety net for the survival of birds and other animals. They pollinate, assist in decomposition and even move fungus around. Sikes said that if all the insects disappeared overnight, the world would start to notice disastrous effects. "Animals like birds, bats

role, most people only notice insects when they are being bugged. They notice the scary ones, the spiders, yellow jackets and other stinging insects. But Sikes says the majority of arthropods fly, crawl and burrow completely under the radar.

These organisms may be tiny, but they are large in number. One estimate claims that two out of every three creatures known on Earth are arthropods.

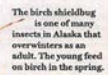
It doesn't seem likely that a division of animals responsible for more than 80 percent of the Earth's biodiversity would be suffering from lack of attention, but it turns out that the world's insects are poorly understood.

More than a million species of animals have been described by scientists, most of them are insects. And even though another 10,000 are identified as new to science each year, experts say there are more insects that have not been described than there are named species. "We haven't even hit the half-way mark," Sikes said. "There are the thousands of specimens awaiting identification in museum collections across the



Since I arrived in 2006, I've described as new two different Alaska species." Sikes said the scientists he works with also find new state records all the time. These are already described species that have never been reported in Alaska before. Since 2006, the list of new records has grown to more than 1,000 species.

The specimens in the museum's insect collection support various efforts to learn new things—everything from the rate of repopulation of Kasatochi to climate change. The climate here is changing faster than in lower latitudes. That means time is running out to properly document pre-warming Alaska. If researchers can develop a better baseline, they'll be able to see if local species have declined or expanded their range, or even adapted in other ways.



The birch shieldbug is one of many insects in Alaska that overwinters as an adult. The young feed on birch in the spring.

IF YOU GO
When: Insect curator Derek Sikes offers the next presentation in the Museum Discovery Series at 6 p.m. Thursday, March 12, with "Alaska's Butterflies, Beetles and Bees." Documenting the Biodiversity of the North: There will be specimens and objects from the museum's insect collection on display starting at 5:30 p.m., so be sure to get there early.

Museum explores wonder of flight this month

By Theresa Bakker

MUSEUM OF THE NORTH

P icture all the living beings on earth.

This parade of animals and plants offers such broad diversity of evolutionary adaptations that it's difficult to pick even one that they all have in common. What might be more interesting to consider is that sets them apart.

For example, as the animals evolved, only some of them began to fly. This specialty isn't limited to one species, family or class. Both invertebrates and vertebrates do it.

Animals and insects do, so. Even some ancient plants did. To fully explore this phenomenon, the University of Alaska Museum of the North has joined programs and lectures during the month of May that celebrate the

era of flight. Gabrielle Vance is a museum educator who is excited by vertebrate flight as an example of convergent evolution among such diverse animals as bats and birds.

"Find it interesting how



A little brown bat captured near Skagway carries a numbered wing band and a radio transmitter so researchers can study their range. (UAMN PHOTO)

participants were then asked to match the identified bird to its wintertime ground on a globe to help them visualize its annual migration.

Birds are able to travel such great distances with such tiny bodies because

examples of this trait in motion and their adaptations are highly varied. For example, the size and number of wings differs among flying insect species. Lots of flying insects have two pairs of wings, species like bees, wasps, dragonflies

have been incredibly successful evolutionarily, as we know here in Alaska. I have already had several mosquito encounters this spring!"

Parents and kids can see this up close by searching for feathers on walls outside this summer and watching for insects in the



A child examines the feathers of an owl while bird collection manager Jack Withrow works on specimens at a museum event. (UAMN PHOTO)

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Parents and kids can see this up close by searching for feathers on walls outside this summer and watching for insects in the



A pterosaur image created for the museum's next special exhibit "Expedition Alaska: Dinosaurs, which open May 23." (UAMN PHOTO)

TOP LEFT: The museum was featured in the award-winning video produced by Explore Fairbanks to promote the community as a travel destination. Marketing & Communications Manager Theresa Bakker recently joined the organization's Advertising & PR Committee. Explore Fairbanks photo.

ABOVE, TOP TO BOTTOM: Marketing & Communications Manager Theresa Bakker writes a series of stories and columns for the *Fairbanks Daily News-Miner*, the community's only daily newspaper.

Marketing & Communications

KEY INGREDIENTS

In the fall of 2014, the museum presented *Key Ingredients: America by Food*, a Smithsonian Institution traveling exhibit featuring a selection of artifacts and illustrations looking at how culture, landscape, and tradition influence the flavor of American meals. Since the museum's special exhibit galleries were already in use, Bakker suggested locating the display downtown at the UAF Community & Technical College to better engage the local community. She also initiated a partnership with the Downtown Association of Fairbanks and the Co-op Market in a collaboration to celebrate the cultural life of the community.

Bakker worked with UAMN Digital Media Producer **Kelsey Gobroski** and Jeremia Shrock, the Downtown Fairbanks Association communications coordinator, to produce a series of videos featuring a wide range of Fairbanks foodies, farmers, and chefs who shared their ideas about the key ingredients that make up our culinary landscape. Bakker also worked with UAMN Exhibit & Graphic Designer **Tamara Martz** to produce and distribute a series of tabletop activities designed to promote the exhibit and engage community members in a discussion about food issues, culture, and history. She was also instrumental in planning the museum's inaugural Chefs at the Museum event, featuring locally-grown key ingredients.



CLOCKWISE FROM TOP LEFT: Interactive Development Coordinator Maité Agopian tries out one of the hands-on elements in the exhibit *Key Ingredients*, developed by the Smithsonian and presented in Fairbanks by the UA Museum of the North. Downtown Association of Fairbanks Communications Coordinator Jeremia Shrock stands by the museum's banner promoting the *Key Ingredients* exhibit on display in downtown Fairbanks in the fall of 2014. Digital Media Producer Kelsey Gobroski films a vendor at the Tanana Valley Farmer's Market for a video series about the local culinary landscape as part of the *Key Ingredients* exhibit. Photos by Theresa Bakker.

FY15 Donors and Members

Generous support from museum members and donors provides essential funds for the museum's research, collections departments, educational programs, community programs, and exhibits. We would like to take this opportunity to thank the people and organizations who supported the UA Museum of the North during the 2015 Fiscal Year. Thank you. Your generosity is tremendous!

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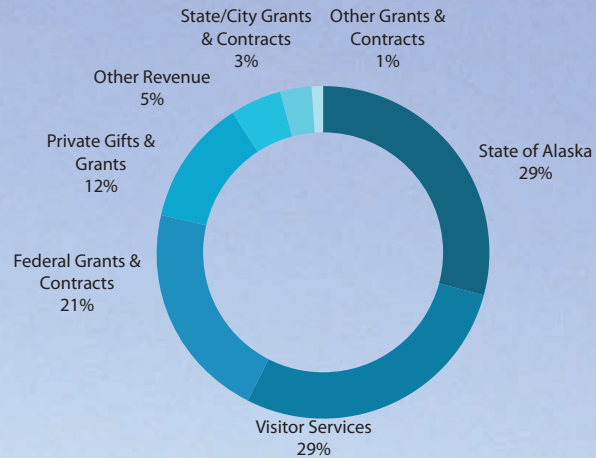
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Financial Summary

INCOME

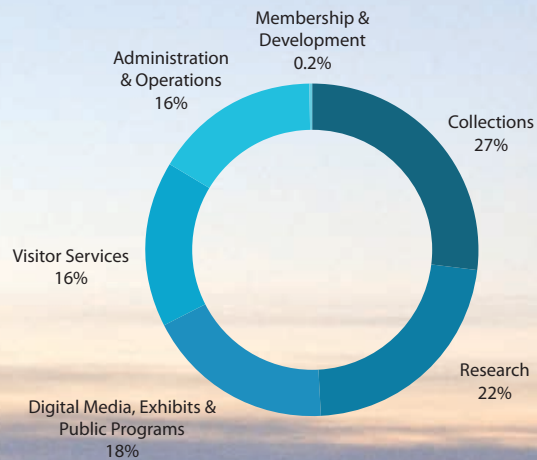
Visitor Services	\$1,368,464
State of Alaska	\$1,415,813
Federal Grants and Contracts	\$1,053,523
Private Gifts & Grants	\$608,759
Other Grants & Contracts	\$65,061
State/City Grants & Contracts	\$135,642
Other Revenue	\$270,311
Total income	\$4,917,573



* Note: Revenue from museum memberships, bequests, and other private donations are held and managed by the University of Alaska Foundation and only appear in the museum's financial summary as those funds are transferred to the museum's spending accounts.

EXPENSES

Research	\$1,108,853
Collections	\$1,354,365
Digital Media, Exhibits & Public Programs	\$883,559
Visitor Services	\$778,542
Administration & Operations	\$798,454
Membership & Development	\$9,583
Total expenses	\$4,933,357



Grants & Contracts Received*

July 1, 2014 – June 30, 2015

ALASKA DEPARTMENT OF FISH & GAME

Addendum to "Terrestrial Arthropod Responses" (Sikes)	\$2,084
Baseline Survey in Alpine and Subalpine Habitats in Southeast Alaska (Sikes)	\$1,672
Bat Genetic Testing (Olson)	\$11,500
Genetics of the Alaska Hare (Lepus Othus) (Olson)	\$49,677
Olive-sided Flycatcher breeding biology and migration in central Alaska (Sikes)	\$16,995
Systematics of Hoary Marmots Supplement (Olson)	\$46,753

ALASKA DIVISION OF AGRICULTURE

Thrips associated with peony in Alaska (Sikes)	\$6,611
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ASSOCIATION OF SCIENCE-TECNOLOGY CENTERS/AFTERSCHOOL ALLIANCE

Lights On Afterschool Partnership minigrant (Arseneau)	\$1,500
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BUREAU OF OCEAN ENERGY MANAGEMENT

Development and testing of a low-cost satellite-tracked ice drifter for Arctic Alaska outreach material development and teacher workshop delivery (Arseneau)	\$14,075
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NORTH PACIFIC RESEARCH BOARD

Rescuing 20,000 Marine Mammal Specimens and Their Data from Obscurity at the University of Alaska Museum of the North (Olson)	\$99,976
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NATIONAL PARK SERVICE

Archaeology Culture Camps (Reuther)	\$50,746
Denali Culture Camp and Family Day (Shirar)	\$5,000
Inventory, Identify and Database NPS Butterfly and Moth Specimens from the Kenelm Philip Lepidoptera Collection (Sikes)	\$24,675
NAGPRA Training and Travel Grant (Reuther)	\$12,300

NATIONAL SCIENCE FOUNDATION

Collaborative Research: Project STEAM: Integrating Art with Science to Build Science Identities Among Girls (Guthrie)	\$21,767
Digitization and Curatorial Improvement for the Aquatic Collections of the University of Alaska Museum (Lopez)	\$231,194
Natural History Collections: Critical infrastructure needs in the University of Alaska Museum's bird collection (Winker)	\$405,225

MUSEUMS ALASKA

Preparation of Museum Collections Satellite Facility (May)	\$4,567
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RASMUSON FOUNDATION

Expedition Alaska: Dinosaurs exhibit grant (Druckenmiller)	\$25,000
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UA BOARD OF REGENTS

Expedition Alaska: Dinosaurs exhibit grant (Druckenmiller/Topp)	\$150,000
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UA FOUNDATION

Archaeology Field Work Support (Reuther)	\$16,500
Dinosaur Project/Exhibit (Topp)	\$59,887
Gallery of Alaska (Jonaitis/Topp)	\$344,000
Museum Permanent Installations (Topp)	\$20,507

UAF PROVOST'S OFFICE

Instructional Equipment Grant (Arseneau/Guthrie)	\$4,928
Instructional Equipment Grant (Druckenmiller)	\$8,627

U.S. BUREAU OF LAND MANAGEMENT

Archaeology Collections Management (Reuther)	\$186,144
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U.S. FISH & WILDLIFE SERVICE

Interdisciplinary Study of How Climate Change May Affect Wetland Habitats, Invertebrates, and the Shorebirds (Lopez)	\$84,029
Turner River Collection Inventory (Reuther)	\$22,585
Regional Inventory of Terrestrial Arthropods – A project for the National Wildlife Refuge System Inventory and Monitoring Initiative (Sikes)	\$30,177

U.S.D.A FOREST SERVICE

Plant Identification Chugach (Parker)	\$2,500
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* This list reflects grants and contracts awarded during the FY15 fiscal year only. It does not include multi-year grants or contracts awarded in previous years.



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