



The Alaskan Wildlifer

Newsletter of the Alaska Chapter of the Wildlife Society

Summer Issue - July 2021



Message from President Kim Jochum

Fellow Wildlifers, as we are moving forward into a new normal, I hope everyone is holding up well. I further hope that motivation towards setting new goals and achievements comes along with this adjustment. We had to persevere through so much these last 15 months, personally and professionally. I often felt like being back on the ocean while conducting humpback whale behavior research, 'waiting for the bad weather to pass by.' I want to reiterate that the Chapter and all of us on the Executive Board are here for you; please reach out any time if we can assist in any way. You can find our contact information at the end of this newsletter.



I am very excited to let you all know that our new website is now live! Please check it out at: twsalaska.org. You will find the latest news from our Chapter, information about the Annual Meeting, historical documents including position statements and past newsletters, and information about the

Chapter's Working Groups and Committees. Soon we plan to add a job board and a members-only portal where members can set-up their profiles, post and respond to threads, and find other members to connect with. Let us know what you think and if you have any suggestions or improvement ideas any time.

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President's Message - Continued

Further, we will have elections for a new President-Elect mid-term this July. Stay tuned for emails regarding voting, and if you are interested in running, let me know by latest **July 15th** at kimjochum@gmail.com. I would love to talk to you more about it and am happy to answer any questions. Also keep in mind that this fall we will also be electing a new Executive Board, including Northern, Southwest and Southeast Representatives, as well as Secretary-Treasurer and President-Elect. Please consider helping our Chapter out in an elected capacity. We need you to make our Chapter grow and achieve our goals, as well as set new goals moving ahead. Our Chapter is only as strong as our membership's support.

Our Annual Meeting this year was very different than usual, completely virtual like all meetings have been these last 15 months, as well as half-days as most members had opted to allow for other responsibilities during a busy work week. We received a lot of positive feedback and I am truly grateful to all our volunteers within the Conference Organizing Working Group and our presenters, and I was impressed what this team was capable of setting up and got accomplished. Please read our conference summary article in this newsletter on page 9 to hear more about it.

The **2022 Annual Meeting will be held in Fairbanks** following our normal rotation again, and we will aim to move back to our early February timeframe. We are hopeful that we will be able to hold the meeting in person and offer virtual attendance as an option. Many of us missed being able to get together and interact socially, surely such a crucial part of our meetings. We further want to incorporate scientific talks again, and allow for our normal number of workshops, social events etc. Please consider getting involved in our Conference Organizing Working Group. You do not need to live in Fairbanks to participate.

Understandably, some of our Working Groups had reduced activity these last 15 months, however we

hope to get more members to participate again. These include (1) the Student and Early Career Professional Working Group and (2) the Chapter Development Working Group. Additionally, a new group, the Parents in the Wildlife Profession Working Group (or "bustin ass for mediocracy" as one of the members called it, referring to their life motto) is currently in development, stemming from our 2021 Annual Meeting discussions (see page 5). Some of our members reached out and got together for an initial scoping meeting, and now this group is hoping to reach out to other members interested in setting initial goals and milestones. This Working Group's first member-wide meeting will be held on July 12th at 10 am. Please email us if you are interested in joining this initial scoping call.

I very much look forward to connecting with you all soon, on the phone, virtually on our website, or in-person during our annual meeting next winter! Stay safe and well, and remember to get outside. Enjoy this beautiful Alaskan summer with friends and family.

Yours truly,

-Kim

Important Chapter News

- 1) We are recruiting for a new President-Elect. Elections will be held this July. Contact kimjochum@gmail.com if you want to run!
- 2) The 2022 Annual Meeting will be held in Fairbanks in early February. We are planning for a hybrid meeting with in-person and remote participation options.
- 3) We have a new Working Group: Parents in the Wildlife Profession. The first call will be on July 12th at 10:00 am Alaska Time. Email twasalaska@gmail.com for call information.
- 4) We have a new website! Come visit us at: <https://twasalaska.org>



Regional News

Northern

Kaiti Ott, Northern Representative

Migrations

Dr. Jeff Muehlbauer accepted the position of Alaska Unit Leader-Fisheries with the Alaska Cooperative Research Unit/UAF. Jeff comes from the USGS Southwest Biological Science Center, Grand Canyon Monitoring and Research Center where he concentrated on large river ecosystem research.

The Fairbanks USFWS Field Office welcomed **Keith Ivy** as a new assistant manager for the Yukon River subsistence fisheries program, and **Shane Ransbury** as the lead fisheries tech/EF Andreafsky crew lead.

John Waryzbok will be leaving the Fairbanks office to join the WSFR Program in Anchorage as a Fiscal Grants Management Specialist.

Happenings

Rabies Outbreak

Communities in northwest Alaska experienced an outbreak of rabies during winter 2020/spring 2021. See full article on page 6.

North American Caribou Workshop

Both the North American Caribou Workshop (NACW), the largest gathering sharing information about caribou and reindeer in the world, and the Arctic Ungulate Conference (AUC) will be coming back to Alaska in the spring of 2023 for a joint meeting. The NACW was last in Alaska in 2004, and the AUC not since 1995. With such a large conference, the organizing committee is looking for additional people to help out with planning, logistics, and more. Technical, like IT, or conference organizing experience is especially welcomed but not required. Please reach out to Kyle Joly (kyle_joly@nps.gov) or Lincoln Parrett (lincoln.parrett@alaska.gov) if you have questions and/or interested in helping out.



TWS-Alaska Chapter Regions: Northern, Southcentral, and Southeast.

Southcentral

Max Goldman, Southcentral Representative

Migrations

Drew Crane was selected as the new Deputy Assistant Regional Director for USFWS Alaska Region, and **Pete Fasbender**, as the new Assistant Regional Director for Fisheries and Ecological Services, to the Alaska Region. Pete joins us from the Southwest Region, where he was the Assistant Regional Director of Ecological Services. Pete replaces **Mary Colligan** who retired in December 2020.

Susi Miller retired from the USFWS Marine Mammal Management Program (MMM) in January. The Service is grateful for her contributions to polar bear conservation and monumental efforts to develop positive relationships with northern Alaska communities.

Bill Beatty transferred from the USFWS Marine Mammal Management Program to take a position with USGS in Wisconsin. Bill's contributions to improving our understanding of walrus and sea otter population demographics in AK are greatly appreciated.

After 33 years with the Service, **Steve Klein** retired from the Wildlife and Sport Fish Restoration Program.



Regional News - Continued

Kate Martin transitioned from the Endangered Species Recovery Program to Coordinator of the new Sea Duck Joint Venture.

Sierra Franks migrated from the Service's Wenatchee, Washington Ecological Services office to join the MMM Program as their new Regulatory Chief.

Mellisa Burns transitioned to her new roll as Proactive Conservation Coordinator, and **Erin Knoll** replaced Drew Crane as the Service's Endangered Species Coordinator.

After 31 years in Alaska, Kodiak National Wildlife Refuge manager, **Tevis Underwood**, headed south to Sacramento, California. Tevis transferred to the Bureau of Indian Affairs as the Supervisor of the Division of Natural Resources for the BIAs Pacific Regional Office

Finally, **Greg Siekaniec**, Regional Director for the Service's Alaska Region will retire in July.

Happenings

Zebra Mussels Found in Alaska

The aquatic invasive species, zebra mussel was detected in aquarium moss balls available at many pet stores statewide, including PetCos in Fairbanks, Anchorage, Wasilla, and Juneau. See full article on page 12.

Southeast

Roy Churchwell, Southeast Representative

Changes

After 50+ years USFWS closed their satellite office in Juneau.

Happenings

Improved Bear Safety

The U.S. Forest Service has installed bear-proof food lockers in Mendenhall Campground and Auke Bay

Recreation Area to help prevent human/bear conflicts. A "ribbon cutting" event is planned for later in the year once Covid restrictions have lessened.

Southeast Alaska Wolf ESA-Listing Petition

The Center for Biological Diversity has petitioned the wolf in Southeast Alaska be considered for listing. The U.S. Fish and Wildlife Service is currently determining if they will consider the proposal.

Publications:

A comparison of methods of analysis of wolf scat to determine prey items. The researchers also investigated the difference between fresh and degraded scats to determine the impact of degraded DNA on the analysis. The analysis was conducted on wolf scats collected around the Southeast Panhandle of Alaska.

Massey, A. L., G. H. Roffler, T. Vermeul, J. M. Allen, and T. Levi. 2021. Comparison of mechanical sorting and DNA metabarcoding for diet analysis with fresh and degraded wolf scats. *Ecosphere* 12(6):e03557.10.1002/ecs2.3557.

Is it time to renew your membership?

New memberships and renewals to The Wildlife Society and the Alaska Chapter are available on-line at The Wildlife Society [website](#).

Click **Join** or **Renew** to obtain membership forms. On The Alaska Chapter [website](#) click on **Membership**.



Get Involved in *Your* Alaska Chapter!

There are many opportunities to get involved with the Alaska Chapter! We have many active members helping out across various Working Groups and Committees, and we are always looking for enthusiastic people that would like to help shape the future of the Alaska TWS Chapter. Let us know what you are interested in any time, by sending an email to our President Kim Jochum, kimjochum@gmail.com, or to our Alaska TWS Chapter email twsalaska@gmail.com.

Working Groups (WGs)

Each WG within the Chapter focuses on achieving specific tasks and goals. Participating in a WG is a short-term time commitment (regular ~ bi-monthly conference calls with occasional emails and specific tasks assigned, maximum one to two-year).

- **Student/Early Career Professionals Development WG**

This group of motivated students and early career professionals revised the Student Chapter bylaws to join students across the whole UA system (UAA-UAS-UAF) and allow them all to become members and officers in the Alaska Student Chapter! This group is also busy identifying interests and possible activities to be taken on by Students and Early Career Professionals within our Chapter

- **Chapter Development WG**

This group is tackling official document edits, currently completing a complete revamp of our bylaws. New bylaws should be available for members to vote on this winter. Next steps include reviewing our current Strategic Plan and developing financial short- and long-term strategies for our Chapter.

- **Conference Planning WG (2022 Annual Meeting)**

Soon, a diverse team of professionals and students will busy planning an unforgettable in-person meeting for 2022 in Fairbanks! Let us

know if you'd like to be involved in the planning effort. More details and updates will become available at: twsalaska.org.

Committees

The Chapter currently has two Committees, the Awards Committee and the Conservation Affairs Committee.

- **Awards Committee**

The Award committee advertises and evaluates award submissions for our various Chapter awards available to wildlife professionals and students and nominates members for National awards. The Awards Committee is currently looking to diversify our member base. Please consider joining.

- **Conservation Affairs Committee (CAC)**

This committee is involved in identifying needs and drafting letters regarding conservation affairs that are relevant to the Alaska TWS Chapter.

New! Parents in the Wildlife Profession

Following the 2021 virtual meeting, a new working group formed with the initial objectives of promoting diversity, equity and inclusion within the Alaska Chapter, and providing support, resources, and actionable items that move beyond simply acknowledging the importance of diversity, to taking action to identify and break down barriers to under-represented groups in the wildlife profession, with a focus on working parents, POC, and LGBTQ members.

While a handful of Chapter members have had an initial scoping meeting, we're hoping to engage a broader group of members interested in helping to set and achieve these goals. The first Chapter-wide meeting of this group will be held on **July 12th at 10 am**. Please email us (twsalaska@gmail.com) if you're interested in joining!



Rabies Outbreak in Western Alaska Sparks Team Response

By Dr. Kimberlee Beckmen - ADF&G

Several State of Alaska Departments, federal and local authorities came together in March 2021 to address a recent rabies outbreak in Nome. Alaska's response to this crisis followed the One Health concept - recognizing that the health of people, domestic and wild animals, as well as the environment, are all intertwined and should be addressed in a collaborative and coordinated fashion.

Arctic fox rabies is enzootic in populations of arctic and red fox populations along Alaska's northern and western coasts. This means rabies is always present in these populations at some low level but periodically there can be outbreaks called epizootics (an outbreak in animal disease rather than an epidemic as it is called when occurring in a human population). However, the winter of 2020-2021 ushered in a widespread outbreak with persistent and large focus in and around Nome.

The first cases in red foxes were recognized in September 2020 when Alaska Department of Fish and Game (ADF&G) biologists Bill Dunker and Sara Germain, based in Nome, began responding to reports of foxes acting strangely. The behavior included shaking or seizing, as well as coming into dog yards and attacking dogs, and often foxes were killed by dogs. Foxes that showed the classic signs of rabies were killed as DLP (defense of life or property) to protect the dogs and human health. Unless the fox tests negative for rabies, any dogs or people exposed to saliva or brain matter of a fox must undergo treatments including a three-shot vaccination regime.

The first rabies-positive red fox was confirmed by the Alaska State Virology lab on October 6. Through March 1, 2021, six additional fox cases were confirmed, and most of these put dogs at risk and unfortunately, lead to the euthanasia of several dogs that were unvaccinated against rabies. Dogs with a current rabies vaccination underwent a 45-day quarantine. An additional six foxes were seen exhibiting rabies behavior such as chasing vehicles, biting at themselves or objects, having seizures, or approaching people without fear, but were not tested.

During this initial outbreak, ADF&G Nome biologists worked with ADF&G Wildlife Health Veterinarian Dr. Kimberlee Beckmen. Other health professionals including Dr. Louisa Castrodale with the Alaska Department of Health and Social Services (DHSS) Section of Epidemiology; Dr. Robert Gerlach, the State Veterinarian in the Alaska Department of Environmental Conservation (DEC); and Rachel Lee of the Norton Sound Health Corporation, worked together to expedite collection of carcasses, shipping, testing and response to exposed dogs. The Centers for Disease Control and Prevention in Atlanta assisted in confirming that the rabies strain in the red foxes was the same Arctic fox rabies.

The city of Nome and others locally assisted with a campaign to raise public awareness and increase vaccination of dogs. This included several vaccination clinics conducted by the Alaska Native Veterinary, Inc. over the winter. Gay Sheffield with the University of Alaska, based in Nome, arranged a Bering Strait Science Zoom presentation for Dr. Beckmen to address people in the area about the rabies situation in Nome.

The increasing number of reports of red fox and Arctic fox acting abnormally, in addition to the growing number of laboratory confirmed cases of rabies, threatened the health of both dogs and people - most Alaskans exposed to rabies are from dog bites, indirectly from a dog exposed to a rabid fox. More action was deemed necessary to get this outbreak under control. ADF&G then contacted Marc Pratt of



A rabid fox.



Rabies Outbreak- Continued

Where does rabies occur?

In Alaska, rabies is enzootic (always present at a low level) in arctic foxes along the north and west coasts of the state. Outbreaks occur in both red and arctic foxes in cycles, typically several winters following a boom in lemmings.

Rabies testing on wildlife from Interior Alaska rarely takes place. However, there have been documented cases of rabies in Interior Alaska in 2013, 1985 and rabies outbreaks in red fox in the 1940's and 1950's.



USDA Wildlife Services in Palmer to enlist their staff and funding through the USDA Wildlife Services National Rabies Management and National Disease Programs, to help mitigate the threat of exposure to rabid foxes. The plan was to remove foxes in and around Nome, thereby reducing the population and decreasing the transmission rate among wild foxes. This would in turn reduce the risk of encounters between potentially rabid foxes and dogs or people. All removed foxes were tested for rabies. Hunters and trappers were requested to submit the heads of harvested fox to ADF&G to be included in the testing. This increased testing was conducted to help determine the prevalence of rabies in the fox population around Nome.

While the largest numbers of foxes collected and tested for rabies were found around Nome, there were also fox rabies cases in villages in the region and on St. Lawrence Island. The St. Lawrence Island picture was further complicated by a simultaneous canine distemper outbreak in dogs. Distemper is also a viral infection of the brain that can cause signs very similar to rabies. In fact, the two diseases can be indistinguishable without diagnostic tests. Fortunately, distemper is not transmittable to humans but is often fatal to dogs, especially puppies.

The red fox rabies fox control operations by USDA Wildlife Services (WS) were conducted in Nome and Savoonga between March 27 and April 6. Wildlife Services removed 19 red fox from the Nome area,

of which two tested positive for the rabies virus. Both positive foxes removed by WS were near a den site located north of the Nome Landfill and consisted of the adult female and one associated juvenile. Wildlife Services also sampled an additional 21 fox previously collected by ADFG. Of those, six were positive for the virus. Two of those were labeled as having strange behavior, two were roadkill, and one fox was identified as being trapped. No additional information was received for the remaining fox. Wildlife Services also collected muscle samples, serum, and heads for ADF&G's Wildlife Health and Disease Surveillance Program to test for other diseases, including distemper. The testing is being conducted at Stanford University and Cornell and samples archived at the University of Alaska Fairbanks Museum of the North. Additional testing by CDC confirmed over 17% of red fox had rabies virus present in the brain and over 26%



A river otter. In early May 2021, rabies was detected in a river otter in Nome. The last time a river otter was confirmed to have rabies was in 2000 in an Aleutians East Borough community. Photo by Tennie Bentz.



Rabies Outbreak- Continued



A red fox. In the winter of 2020-2021 and spring 2021, rabies was confirmed in communities along the northern and western coast from Bristol Bay to the North Slope. In late April and early May, two foxes in Dillingham behaving abnormally were killed and tested positive for rabies. Photo by Arin Underwood.

had antibodies in the serum showing they had been exposed to rabies. Serum testing also showed 70% of foxes had been exposed to distemper in the Nome area and a case of distemper in a rabid fox north of Nome was detected. Thus, this additional threat to dogs was identified on the mainland as well as St. Lawrence Island.

The Norton Sound Regional Health Corporation requested that Wildlife Services conduct Arctic fox removal in Savoonga due to concerns of rabies and distemper. After consultation and concurrence with ADF&G, WS split their four-man crew and sent two biologists to Savoonga (April 1-5) to conduct Arctic fox removal and collect brain samples to test for rabies and distemper. In total, Wildlife Services removed 46 Arctic fox during the four days, and local residents provided an additional ten. At the conclusion of the operation an additional fox exhibiting strange behaviors was killed by a local resident. Forty-six brain samples, and the head of the fox acting strangely, were taken back to Nome and tested for rabies by Wildlife Services biologists. Most of the fox removed in Savoonga were located near a whale carcass harvested last fall and buried under the snow. The foxes were burrowing through the snow and into the whale carcass to feed. The carcass was located on the eastern side of the community along the shoreline.

The preliminary results showed no rabies positive tests from Savoonga, but previously four rabies positive arctic foxes killed in the village had been confirmed by CDC. Brain samples were also collected for distemper testing.

Given the prevalence of the rabies virus in Western and Northern Alaska, and the regular occurrences of rabies outbreaks near villages, ADF&G and WS are planning to determine what options are available to develop an Alaskan rabies surveillance and management program. Rabies vaccination of pet dogs remains the most critical step in preventing rabies exposure to Alaskans. But control of stray and feral dog populations will also need to be addressed. There may be more that can be done, including providing oral vaccination baits for foxes in surrounding key locations. Unfortunately, the current oral vaccination baits will not work if they are frozen so that hurdle remains a major problem. It's unknown what environmental factors precipitated this severe outbreak but changes in sea ice and prey availability affecting the distribution - and contact between - Arctic and red fox populations likely contributed. What the future holds is an open question but since rabies outbreaks occur every year to some degree, it's important to be prepared for future repeats of outbreaks similar to 2020-2021.

The response to the rabies situation in Nome highlights how cooperative actions of multiple agencies and entities can come together in a crisis to mitigation a human health as well as animal health emergency.

[Video](#): Red fox having seizures consistent with the terminal stage of rabies

[Safety Precautions](#) for Rabies Outbreak in Bering Strait Region and Western Alaska

[More on Rabies](#) AFWN article from 2012 highlighting a rabid wolverine

Dr. Kimberlee Beckmen is ADF&G Wildlife Health Veterinarian, based in Fairbanks.



TWS Alaska Chapter 2021 Annual Meeting Summary

By Tessa Hasbrouck & Tom Paragi

What a wild year! We held the 50th Alaska Chapter of the Wildlife Society Annual Meeting 19–23 April 2021. We matched an unprecedented year with an unprecedented format for our annual meeting. Not only was this our 50th meeting but it was our 1st virtual event. A member survey guided our decision to create half-day events throughout the week.

The theme of our 2021 Annual Meeting was “Remembering the Past, Preparing for the Future.” This was an opportunity to reflect on important scientific and policy issues facing the Alaska Chapter from its inception 50 years ago as well as consider factors that may influence our futures. A big thanks to Jensen Hall, LLC for making this meeting possible by pre-recording presentations, editing videos, and facilitating all Zoom logistics.

Plenary Speakers and Panel Discussion

On the first day of presentations, a plenary of past presidents, 1 from each of the first 4 decades (Dick Bishop 1970s, John Schoen 1980s, Ellen Campbell 1990s, and Eric Taylor 2000s), reviewed important historic events in wildlife conservation where the Chapter was involved in outreach to inform the public on policy choices. Then a panel of 6 speakers from different entities (state and federal agencies, NGO, consulting firm) spoke about their personal experiences in conservation as Alaska went through some dramatic changes in land ownership, wildlife management practices, and resource development in coastal forest and the Arctic. Both these pre-recorded sessions are available on our YouTube Channel now! Watch them [here](#). On the 2nd day of our meeting, current TWS President Carol Chambers spoke live about our present challenges, the steps that TWS is taking to enhance equity, diversity, and inclusion, and why diversity is crucial in academia and in science.

On our third meeting day, Roger Kaye engaged us with the challenges facing society during the Anthropocene. Human influences on global ecosystem drivers, such as climate and pollution,

are now affecting even remote protected areas. This challenges us to reconsider the meaning of “natural” systems and prioritize designated wilderness between active conservation of declining species and the intent of the Wilderness Act to restrain human actions.

Workshops: Social Justice Training, Science Communication, and Statistics in R

In addition to our past, present, and future speakers, TWS provided three workshops. Native Movement, a grassroots organization that started in Arctic Village, kicked off the conference with a half-day workshop focused on colonialism and racism in the wildlife profession. Mid-week, Alex Lewis and Tessa Hasbrouck held a workshop on elevator pitches and the importance of science communication. Cody Deane provided the finale event; a workshop focused on plotting fitted and observed data in R. All three workshops were well attended.

Business Meeting

During the Chapter business meeting, officers and members discussed our many active Working Groups and their accomplishments over the last year, as well as ways to get involved. Amanda Droghini gave an overview of the Chapter’s finances, and Grant Hilderbrand provided an update from the Northwest Section. We also discussed where the next annual meeting would be held.

Social Mixer and Art Contest

The Early Career and Student Professional Working Group organized several social events, including a student/early career-professional mixer and an art competition. The mixer had state and federal agency representatives available to answer questions by students and early career professionals. The art contest highlighted our members’ skills in photography and mixed media. Art contest winners were Elisabeth Melk (1st Place Creative Expressions), Arin Underwood (2nd Place Creative Expressions), Molly Garner (Tied 1st Place “Landscape” Photography), Rachel Kelty (Tied 1st Place “Landscape” Photography), Tim Fullman (1st Place “People Outside” Photography), Shelby McCahon (1st Place “Plants and Fungi” Photography), and



Annual Meeting Summary - Continued

Jeff Wagner (1st Place “Wildlife” Photography). The winning entries are displayed below, and on the following page, but you can view all the fantastic entries online [here](#).

Chapter Awards

Finally, keep an eye out for Matthew Cameron, Alexander Prichard, and Jerry Hupp to congratulate them all. These three members received the Student Wildlife Conservation Award, Professional Achievement Award, and the Lifetime Achievement

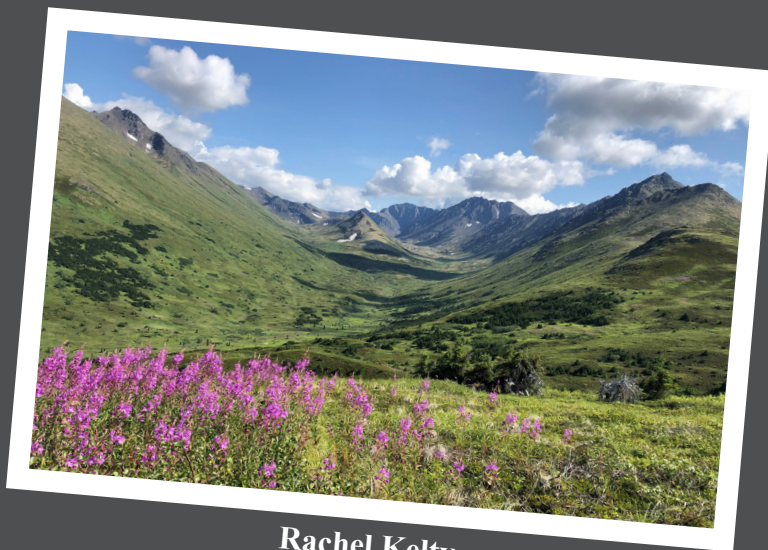
Award, respectively, and they all deserve a huge round of applause.

We appreciate everyone’s patience and adaptability as we navigated this past year’s meeting! Thank you for your continued passion for Alaska’s great wildlife and habitats. Stay tuned for more information regarding next year’s TWS meeting. In the mean-time, watch out for our monthly scientific presentations and check out our website to view the recorded plenary and panel sessions. Stay safe and stay kind!

Art Contest Winners!



Elisabeth Melk
“Gray Ghost” - acrylic painting
1st Place Creative Expressions
<https://www.etsy.com/shop/LizzieMelksArtCloset>
<https://m.facebook.com/LizzieMelksArtCloset/>
https://www.instagram.com/lizzie_melks_art_closet



Rachel Kelty
“Snowhawk Valley”
Tied 1st Place Landscape Photography

Find us on Facebook!

You can “like” us on Facebook! On our [Facebook page](#), we are posting information on scientific publications relevant to Alaska’s wildlife, announcements of upcoming meetings, and job openings. If you have ideas on how we can most effectively use our Facebook page, contact the Executive Board through Chapter email: twasalaska@gmail.com.



Art Contest Winners Continued



Molly Garner
"Lake District Overlook"
 Tied 1st Place Landscape Photography
 Instagram: @mollyonthemap



Tim Fullman
"Hello Friend"
 1st Place People Outside Photography
 Twitter: @TimFullman



Jeff Wagner
"Someone Get Me a Lint Roller"
 1st Place Wildlife Photography
 Instagram: @jeffawagner, and
<https://wagnerwildlife.photoshelter.com>



Shelby McCahon
"Fallen Bloom"
 1st Place Plants and Fungi Photography
 Instagram: @birchbark_photography



Arin Underwood
"The Life of a Puffin" - watercolor and pen
 2nd Place Creative Expressions
 Instagram: @pelagos_, and
www.etsy.com/shop/OctopusRockArt



ALERT: Invasive Zebra Mussels Have Illegally Hitchhiked to Alaska

by Tammy Davis - ADF&G

In early March this year, I received the type of alert I have been dreading since I started working as the invasive species program coordinator for the Department of Fish and Game 15 years ago. The US Geological Survey sent an automated report to me and others across the nation, that invasive zebra mussels had been found attached to aquarium moss balls by a keen-eyed employee of Petco in Seattle, Washington.

Within a few hours, my inbox was on fire with messages from invasive species coordinators in western states, stating that zebra mussel infested moss balls had been found in pet stores in their state too. Quickly, it was clear that invasive mussels had hitchhiked on aquarium products to many states in the U.S., and most importantly to me, to Alaska! Currently, 27 states and 2 Canadian provinces have evidence of zebra mussels packaged along with marimo moss ball products sold at pet stores. The implications of this news to the wild and rich waters of Alaska cannot be overstated. If you have purchased marimo moss balls from a pet store or an online source, we need to talk. Please call me.

Velvety in appearance, marimo moss balls are not actually moss, but a rare growth form of live filamentous algae of the species *Cladophora aegagrophila* or *Aegagropila linneaei*. These algae are indigenous to lakes and rivers in Iceland, Japan, and eastern Europe. Most moss balls imported into the U.S. in the aquarium trade are from Ukraine. Notoriously invasive mussels are also native to freshwater systems in Ukraine, both zebra mussel (*Dreissena polymorpha*) and quagga mussel (*Dreissena bugensis*) are naturally found in its Dnieper River drainage.

Zebra mussels are thumbnail-sized invasive freshwater shellfish named for the striped pattern of their shell. They look like tiny D-shaped clams. Though they don't look like much, it's hard to overstate the threat they pose to Alaska public waterways. The Great Lakes region was invaded by zebra mussels in the 1980s and they quickly spread.



Zebra mussels attached to marimo moss ball. Photo courtesy Oregon Department of Fish and Wildlife.

Over thirty years later, they have infested nearly all watersheds in the Lower 48, the Columbia River Basin in the Pacific Northwest is one exception. In the Great Lakes, the invasive mussels have dramatically reduced primary production and have contributed to basin-wide population crashes of species fundamental to food webs and fisheries. Some studies indicate invasive mussels may facilitate the establishment of other harmful invasive species.

Even where they are native, these mussels out compete other species, but where they are invasive, the destruction and financial burden are staggering. Although the environmental and economic costs that zebra mussels could impose on Alaska have not been evaluated, the State of Washington estimates impacts to dams, agriculture, salmon, and other resources would exceed \$100 million, and we know the Great Lakes region experiences \$500 million annually in damages¹. With that level of economic hardship, you can understand the alarm that rang across the west when zebra mussels were found in pet stores.

If you have towed a boat through the west in the past ten years, you've probably been through a watercraft inspection and decontamination station. State, federal and local entities have increasingly set up stations at boat launches and along highways to inspect for aquatic invasive species that attach to hulls and propellers or are concealed in live wells, bilge tanks or other



Zebra mussels - Continued

compartments. Boats arriving at these stations after having visited infested lakes and rivers, or displaying obvious clinging mussel shells, dangling aquatic plants or other signs of invasive species, are pressure washed with 104°F water to kill invasive organisms. Trailered watercraft are a well-known pathway for invasive mussel introductions. When zebra mussels were found hitchhiking on aquarium moss balls, it required an immediate shift in thinking by aquatic invasive species managers.



A close look at a cluster of zebra mussels. US Fish & Wildlife Service photo.

That afternoon, I was on the phone with Dan Coleman, Alaska Department of Natural Resources (ADNR) Invasive Species and Agricultural Pest Coordinator, discussing signs to be posted at Elodea infested lakes. I told him about the zebra mussel observations in various states and that I had been calling pet stores to ascertain if these products were for sale in Alaska. Upon my news, Dan said, “I’m heading out the door, I’ll stop at the Wasilla Petco, and get back to you.” Shortly after I hung up, Dan notified me he had found what appeared to be zebra mussels in a container with a Betta Buddy marimo ball. He also sent a close-up photo. Even though they were quite small, slightly larger than a grain of rice, they looked very much like zebra mussels.

As Dan was visiting his local outlet, I continued calling other stores in the state. Any pet store with marimo balls for sale were asked to voluntarily pull their stock until we had more information. In most cases, store managers were happy to avert an invasive species threat by holding back their stock. By mid-day, Petco had informed their stores nationwide to pull all products suspected to harbor zebra mussels.

Pet stores and aquarium hobbyists will pay the price if zebra mussels take over their aquarium systems. However, Alaska has a lot more to lose if someone

illegally dumps their aquarium into a lake or storm drain. The fact that ADF&G receives reports of non-native ornamental fish in state waters demonstrates this behavior occurs. You might remember that ADF&G eradicated [goldfish from Anchorage’s Cuddy Pond](#) in 2019. If zebra mussels have been introduced into an aquarium from a marimo moss ball, they will take over the

system, and it will be challenging to eliminate them. If aquarium water from an infested tank is dumped down the drain or toilet, zebra mussels could clog your home plumbing or cause more severe and costly consequences for municipal water infrastructure. Clogging pipelines by forming dense colonies is among the many negative consequences zebra mussels cause.

In addition, when introduced to lakes and rivers, invasive mussels cause widespread, long-term, damage by altering food webs, changing water chemistry, and harming native fish, plants and other aquatic life. They foul shorelines making them unusable, encrust fish passage facilities and aquaculture operations, and damage boats and marinas. They are highly efficient filter feeders which means when large populations take over a lake, they can deplete plankton, starving native species. The waste they produce accumulates and degrades the aquatic environment, depleting oxygen and making water acidic. Any way you look at it, preventing zebra mussel infestations is the best choice we have.

Once these little bivalves become established, eradication is nearly impossible. Some consider zebra mussels to be the number one invasive species threat to freshwater environments because of the destruction to fish habitat, loss of recreational opportunities, and the economic impacts to fisheries, hydropower, and municipal drinking and wastewater infrastructure, as well as to lakeshore property owners.



Zebra mussels - Continued

Preventing zebra mussels from destroying our lakes, fisheries, and favorite ways of spending time on the water is up to all of us. The water chemistry, temperature gradients and other habitat parameters of Alaska waterways are suitable for zebra mussel to become established, which is why preventing an introduction is paramount. The first thing you can do is to handle your aquarium contents legally and safely, which means never dumping its contents into water bodies. If you are a boat owner, also remember to “Clean, Drain, and Dry, Every Time.” By always cleaning plant material, critters and sediment from your propeller, hull and trailer; draining water by pulling the plug before you leave the launch and drying any water from your boat before you launch again, you can help stop the spread of aquatic invasive species.

If you are an aquarium hobbyist and have purchased marimo moss balls, zebra mussels could have been introduced to your tank. Again, first and foremost, never dump aquarium contents, including fish, plants, and water, into a nearby lake or river or down a storm drain. It is illegal and harmful to the environment. There are stiff fines for violations. Next, dumping the contents of your aquarium down the drain in your home should only occur only after the water has been sanitized and any unwanted living organisms have been dispatched. If you have a marimo moss ball in your aquarium tank, fish bowl or even a decorative jar, please call the Invasive Species Hotline at 1-877-INVASIV (1-877-468-2748) for guidelines on how to safely dispose of them, sanitize your system and protect your aquarium. Your actions make a difference.

It can be difficult to euthanize a pet you’ve grown attached to yet can no longer care for. It may seem harmless to give it a chance at life in the wild. But none of the likely scenarios are good. Your pet will either become lunch or die from the drastic change in environment. If it lives, the worst-case situation is that not long after you release it into a nearby lake, natural resource agencies and local non-profits that are invested in healthy ecosystems and clean water will

be called in to clean up an expensive environmental problem. A real-life example in Alaska is Elodea. It is a hardy, invasive, aquatic plant that was sold in the aquarium trade and used in science classes in the state before 2014. When numerous water bodies had become infested, ADNRC quarantined five aquarium plants, including two species of Elodea. Today, 24 water bodies in Alaska are invaded, including waters from Cordova to Southcentral and into the Interior. Evidence indicates infestations in Cordova, Fairbanks and Anchorage originated when someone dumped their aquarium. In the past ten years, state, federal, and tribal agencies and local organizations have eradicated Elodea from 11 water bodies.

Projects to eradicate invasive species infestations that originated from illegal release of non-native organisms require expertise, collaboration with other agencies and landowners, reallocation of staff time, and financial resources over years. Though costly, these projects are necessary to reduce the chance of further spread, to restore valuable habitat, and reestablish or improve fishing opportunities. To efficiently use funds and avoid environmental and economic harm, preventing the introduction of zebra mussels to Alaska waters is crucial.

Thank you for doing your part to help:

- Learn about invasive species
- Prevent introductions,
- Report anything you suspect to be invasive,
- Participate in local control projects, and
- Tell a friend!

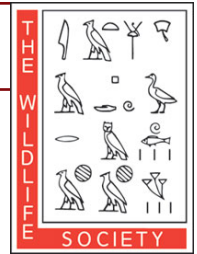
Flyer: [StopAquaticHitchhikersAquariumOwners.pdf](https://stopaquatichitchhikersaquariumowners.pdf) (alaska.gov)

Tammy Davis is the Invasive Species Program Coordinator at ADF&G. She hopes you’ll do your part to Keep Alaska Wild and Free of Invasive Species!

¹Safeguarding the West from Invasive Species. Actions to Strengthen Federal, State, and Tribal Coordination to Address Invasive Mussels. U.S. Department of Interior. 2017.



Summer Reading - Top Journal Downloads of 2020



For over 80 years, The Wildlife Society has helped develop, contextualize, and advance the scientific foundation of wildlife management through publication of peer-reviewed studies in the Journal of Wildlife Management (1937), Wildlife Monographs (1958), and Wildlife Society Bulletin (1973). As a leading resource for wildlife managers in the field and a central component of the Society's mission, regularly assessing engagement with TWS journal content helps provide valuable insights about the future of wildlife management in North America and beyond.

Looking at article download trends provides a quick and easy way to show active engagement and use of journal content over time and can be analyzed per article or journal title. In 2020, downloads of articles

published in TWS journals increased by 15% compared to 2019. That marks the fifth consecutive year of increasing downloads.

Wondering what your fellow wildlifera are reading? The table below includes the top 15 downloaded papers published in TWS Journals in 2020 as of March 2021. Members of TWS receive free access to all TWS publications. To take advantage of this exclusive member benefit, simply log into [Your Membership](#) and go to the "Publications" tab.

For more information on journal publishing metrics in the digital age and their relevance to TWS, check out the article A Measure of Influence, which appears on pages 39-43 of the May/June 2020 issue of The Wildlife Professional.

Table. Top 15 papers published in TWS Journals in 2020 based on the number of downloads as of March 2021.

Title / Author(s) / Journal
Assessing Nutritional Condition of Mule Deer Using a Photographic Index Smiley, R.A., Rittenhouse, C.D., Mong, T.W. and Monteith, K.L. <i>Wildlife Society Bulletin</i>
Best Management Practices for Trapping Furbearers in the United States (open access) White, H.B., Batcheller, G.R., Boggess, E.K., Brown, C.L., Butfiloski, J.W., Decker, T.A., Erb, J.D., Fall, M.W., Hamilton, D.A., Hiller, T.L., Hubert, G.F., Jr., Lovallo, M.J., Olson, J.F. and Roberts, N.M. <i>Wildlife Monographs</i>
Effects of Wind Turbine Curtailment on Bird and Bat Fatalities (open access) Smallwood, K.S. and Bell, D.A. <i>The Journal of Wildlife Management</i>
Dogs Detect Larger Wind Energy Effects on Bats and Birds (open access) Smallwood, K.S., Bell, D.A. and Standish, S. <i>The Journal of Wildlife Management</i>
Anthropogenic Disturbance and Population Viability of Woodland Caribou in Ontario (open access) Fryxell, J.M., Avgar, T., Liu, B., Baker, J.A., Rodgers, A.R., Shuter, J., Thompson, I.D., Reid, D.E.B., Kittle, A.M., Mosser, A., Newmaster, S.G., Nudds, T.D., Street, G.M., Brown, G.S. and Patterson, B. <i>The Journal of Wildlife Management</i>



Summer Reading - Continued

[Wolverine Occupancy, Spatial Distribution, and Monitoring Design \(open access\)](#)

Lukacs, P.M., Evans Mack, D., Inman, R., Gude, J.A., Ivan, J.S., Lanka, R.P., Lewis, J.C., Long, R.A., Sallabanks, R., Walker, Z., Courville, S., Jackson, S., Kahn, R., Schwartz, M.K., Torbit, S.C., Waller, J.S. and Carroll, K.

The Journal of Wildlife Management

[Ratcheting up Rigor in Wildlife Management Decision Making \(open access\)](#)

Fuller, A.K., Decker, D.J., Schiavone, M.V. and Forstchen, A.B.

Wildlife Society Bulletin

[Boreal Caribou Can Coexist with Natural but Not Industrial Disturbances \(open access\)](#)

Stewart, F.E.C., Nowak, J.J., Micheletti, T., McIntire, E.J.B., Schmiegelow, F.K.A. and Cumming, S.G.

The Journal of Wildlife Management

[Are Sage-Grouse Fine-Scale Specialists or Shrub-Steppe Generalists? \(open access\)](#)

Smith, J.T., Allred, B.W., Boyd, C.S., Carlson, J.C., Davies, K.W., Hagen, C.A., Naugle, D.E., Olsen, A.C. and Tack, J.D.

The Journal of Wildlife Management

[Preparing Wildlife for Climate Change: How Far Have We Come? \(free to read\)](#)

LeDee, O.E., Handler, S.D., Hoving, C.L., Swanston, C.W. and Zuckerberg, B.

The Journal of Wildlife Management

[Computational Reproducibility in The Wildlife Society's Flagship Journals \(open access\)](#)

Archmiller, A.A., Johnson, A.D., Nolan, J., Edwards, M., Elliott, L.H., Ferguson, J.M., Iannarilli, F., Vélez, J., Vitense, K., Johnson, D.H. and Fieberg, J.

The Journal of Wildlife Management

[Identifying Birds' Collision Risk with Wind Turbines Using a Multidimensional Utilization Distribution Method \(open access\)](#)

Khosravifard, S., Skidmore, A.K., Naimi, B., Venus, V., Muñoz, A.R. and Toxopeus, A.G.

Wildlife Society Bulletin

[Pandemics and the Need for Automated Systems for Biodiversity Monitoring \(free to read\)](#)

Sugai, L.S.M.

The Journal of Wildlife Management

[Widespread Lead Exposure in Golden Eagles Captured in Montana \(open access\)](#)

Domenech, R., Shreading, A., Ramsey, P. and McTee, M.

The Journal of Wildlife Management

[Overabundance of Black-Tailed Deer in Urbanized Coastal California](#)

Furnas, B.J., Landers, R.H., Paiste, R.G. and Sacks, B.N.

The Journal of Wildlife Management



In Memoriam - Roger Smith 1944-2021

By Victor Barnes (USFWS bear research biologist, Kodiak, 1982-1997)

Roger Brian Smith, an accomplished outdoorsman, dedicated wildlife manager and trusted friend of many, passed away in early February 2021 in Pueblo, Colorado. He was 77 years old.

Roger was born in Trinidad, Colorado, and quickly developed a passion for wildlife and wild places. He grew up hiking, hunting, fishing, and trapping, and knew early on that the outdoors was his calling.

In 1967, Roger obtained an undergraduate degree in wildlife management at Colorado State University and then traveled to Anchorage, Alaska, where he worked as a temporary employee for the Alaska Department of Fish and Game (ADF&G). A highlight of his time in Alaska (1967-1969) was a 1,600-mile canoe trip with a friend down the Yukon River from Whitehorse, Canada to Galena, Alaska.

In 1969, Roger moved to Flagstaff, Arizona and in 1971, received a master's degree at Northern Arizona University. His research, funded by a National Geographic grant, focused on small vertebrate animals in Mexico.

Roger returned to Alaska in 1971 to begin a long career with ADF&G. His first position was in Anchorage and involved work on a moose road-kill project. In 1973, he was promoted to the position of Area Wildlife Biologist for the Kodiak Archipelago. This move set in motion a 24-year period of outstanding wildlife management and research in one of the most wildlife-rich areas of North America. Roger was responsible for managing Kodiak brown bears, Roosevelt elk, Sitka black-tailed deer, mountain goats and furbearers.

A highlight in Roger's career in Kodiak was the development of a brown bear management system that is widely recognized as one of the most effective

programs world-wide. His focus on distributing harvest throughout the Archipelago based on population density, as well as a conservative harvest directed at males with a consistent yield of trophy animals, is regarded as a model of excellent bear conservation.

Another source of pride for Roger was the brown bear research he conducted on Kodiak. He was a lead investigator for the Terror Lake study that examined potential impacts of the Terror Lake hydroelectric project on bears. This study, on northern Kodiak Island, was launched in 1982 and at the same time the

U.S. Fish and Wildlife Service was beginning a bear research program on southwest Kodiak Island.

These two studies ushered in a 16-year span of cooperative State and Federal studies on several areas of Kodiak Island. The result was a wealth of information, including objective density estimates (mark/recapture), movements and home range size, survival, and long-term reproduction. An aerial survey procedure to track population trend was developed during this time and is still in use today.

Roger's talents and contributions were not limited to management and research. He gave freely of his time to teach hunter education

and 4-H classes. He was a treasured companion on hunting trips for deer on Kodiak, quail in Arizona, and turkeys and waterfowl in several states. He was a great cook and almost always took charge of meals in hunting camps. He was extremely proud of his Hispanic heritage and, as such, was an expert in preparing supreme Mexican meals. Most of all, Roger had numerous loyal and life-long friends that he often visited or entertained, and he spent countless hours on the phone keeping track of colleagues and friends. Roger Smith was a man of integrity, honesty, and dedication. He will be deeply missed by those he touched during his lifetime.



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