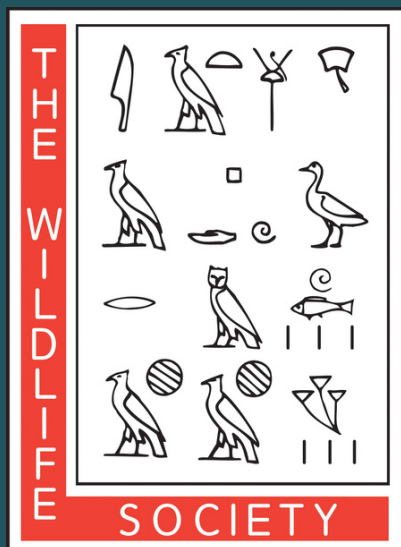


NUTRITIONAL ECOLOGY WORKING GROUP

TABLE OF CONTENTS

Message from the Chair.....1-2
 Announcements & Upcoming
 Events.....3
 NEWG Webinar Series.....4
 Annual TWS Conference.....5
 NEWG Skills Workshop.....6-7
 Travel Grant Winners.....8-11
 Recently Published Research....12



THE WILDLIFE SOCIETY



NUTRITIONAL ECOLOGY
WORKING GROUP

... understanding wildlife populations from the bottom-up.

MESSAGE FROM THE CHAIR

Hello everyone,

I would like to begin by thanking everyone for their consistent interest in the Nutritional Ecology Working Group.

I am excited to serve the working group as the new chair and want to give a special thank you to Kristin Denryter and Dan Thompson for the tireless hours put in to make the working group what it is today. Their leadership has really helped this working group thrive and led to a plethora of opportunities for TWS members to enhance their knowledge of nutritional ecology.

The new executive board of the Nutritional Ecology Working Group officially took office at the National TWS meeting in Louisville. We say goodbye to Kristin Denryter (5 years of service, Chair and Past Chair), Tom Stephenson (5 years of service, Board Member), and Katie Anderson (4 years of service, Treasurer) and thank them for their invaluable contributions to the Nutritional Ecology Working Group executive board.

Many of our veteran board members returned for another term, but I would also like to welcome the many new executive board members, including Jocelyn Biro (Wilfrid Laurier University, Board Member), Jacob Dykes (Texas A&M University, Board Member), Levi Heffelfinger (Texas A&M University – Kingsville, Board Member), Mary Hiney (University of Colorado – Denver, Newsletter Editor), and Brittany Wagler (University of Wyoming, Treasurer). While it will be difficult to replace the contributions of our past board members, I am confident that our new board’s combination of experience and new perspectives will continue to move the working group forward.

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MESSAGE FROM THE CHAIR

The past winter has been especially busy for the Nutritional Ecology Working Group! At the national meeting in Louisville, the working group facilitated a symposium, “Animal foraging, food webs, and nutrition: linkages revealed using stable isotopes” and workshop, “Introduction to Stable Isotopes in Nutritional Ecology”. We also provided 3 student/early career travel scholarships to help individuals present on nutritional ecology related topics at the national meeting. We also held our second skills workshop, “Measuring Forage Quantity and Quality for Herbivores” in Kingsville, Texas and provided 3 student/early career travel scholarships for individuals to attend. We received lots of positive feedback from the workshop and the new board is in the process of planning the next skills workshop in Anchorage, Alaska in 2025. Finally, we recently concluded our winter webinar series in which we had 5 speakers cover a variety of topics in nutritional ecology; these webinars continue to be well attended and a great way for TWS members to learn about nutritional topics across the world.

We are excited to announce that we have submitted proposals for a TWS symposium, “Dietary balancing acts: The nutritional geometry of feeding decisions in wildlife ecology”, and associated workshop, “Introduction to nutritional geometry in nutritional ecology”, at the upcoming national meeting in Baltimore, Maryland. Additionally, the working group is in the process of facilitating an 8-article submission for a 2025 issue of *The Wildlife Professional*. The articles will cover a wide array of topics in the field of nutritional ecology and be led by respective experts on each topic. These articles will help the working group reach a more diverse audience and expose readers to the nutritional topics that we all find so interesting.

Finally, this fall the Nutritional Ecology Working Group will hold elections for chair, chair-elect, and secretary. If you or anyone you know is interested in these positions, please contact myself or any of our board members. Serving on this board is a great way to help advance and help generate further interest in the field of nutritional ecology. Again, thank you for your continued support and please feel free to contact me with any questions you may have regarding the working group.

Marcus Blum
Chair, Nutritional Ecology Working Group



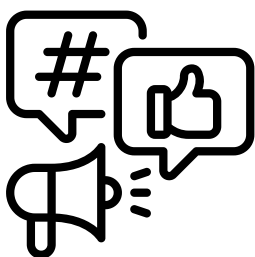
Board Members

Chair: Marcus Blum
 Chair-elect: VACANT
 Past Chair: Dan Thompson
 Secretary: Katey Huggler
 Treasurer: Brittany Wagler
 Outreach & Communications Officer:
 Yasaman Shakeri
 Newsletter Editor: Mary Hiney
 Board Member: Rachel Cook
 Board Member: Colter Chitwood
 Board Member: Jocelyn Biro
 Board Member: Jacob Dykes
 Board Member: Levi Heffelfinger

Call for Content and NEWG Elections

NEWG is calling for content for the quarterly newsletter. The deadline for the next newsletter is August 1, 2024. Email content to the Newsletter Editor at mary.k.hiney@gmail.com.

The chair, chair elect, and secretary position will be open this fall!



**Follow us on X
@NEWG_TWS**

Announcements & Upcoming Events

A Nutrition Student Fellow position posted on February 5, 2024 by the San Diego Zoo Wildlife Alliance. Job requirements include being a recent graduate or current graduate student with a specific interest in comparative animal nutrition, and the completion of introductory Animal Nutrition class. Position location: San Diego, CA and Escondido, CA | Full-time from June to December | \$19.00 an hour.

Highlights of Recent Board Meeting Minutes – January 2024

- Yasaman and Mariah are going to work on publishing the slides from the symposium.
- Treasurer's Report: \$9,680.90 which includes expenses for the workshop that have been paid out.
- Call for sponsoring symposium in Baltimore: Nutritional Geometry as topic
- The Wildlife Professional – 1,600 word limit. Topics proposed stable isotopes, nutritional geometry, nutritional and wildlife management For 2025 issue, must submit article by October 2024.

NEWG WEBINAR SERIES

The Wildlife Society's Nutritional Ecology Working Group has facilitated a winter webinar series for the past 4 years showcasing the diversity of nutritional ecology research. The webinar committee, consisting of Keith Oster, Tamara Johnstone-Yellin, Scott McWilliams, and Dan Thompson, just finished up the webinar series for this winter. We would like to thank our 2023-2024 presenters:

Juliana Balluffi-Fry – University of Alberta.

Daniel P. Thompson – Alaska Department of Fish and Game – Kenai Moose Research Center.

Karen Marsh – Australian National University.

Michael Cherry, Miranda Hopper, Breanna Green, Joseph Hediger – Texas A&M Kingsville.

Tamara Johnstone-Yellin – Bridgewater College.

Recorded webinars for this year's series, as well as the last 3 years, can be found at the following link: <https://wildlife.org/newg/webinar-series/>.

If you have ideas for presentations for the 2024-2025 webinar series, please email them to tws.nutritional.ecology@gmail.com.



ANNUAL TWS CONFERENCE

The Nutritional Ecology Working Group sponsored a workshop and symposium at The Wildlife Society's annual conference in Louisville on Stable Isotopes. The stable isotope committee, Scott McWilliams, Phil Manlick, Seth Newsome, Keith Hobson and Garrett Savory organized both the workshop and symposium, with Dan Thompson providing logistic support with national TWS. The stable isotope committee put on an excellent workshop entitled "Introduction to stable isotopes in nutritional ecology." Workshop attendees gained a comprehensive knowledge of the use of stable isotopes in nutritional ecology, and then worked through example datasets. Workshop materials are available for anyone at the following link: <https://wildlife.org/newg/stable-isotopes-workshop/>.

To compliment the workshop, the stable isotope committee also pulled together a diverse set of speakers for the symposium "Animal foraging, food webs, and nutrition: Linkages revealed using stable isotopes." Speakers came from North America and Europe and gave presentations incorporating stable isotopes in nutritional ecology on a variety of species from spiders to polar bears. Recorded presentations will be available sometime this spring at the following link: <https://wildlife.org/newg/symposium/>.



The Nutritional Ecology Working Group thanks both the stable isotope committee and the presenters in the symposium for advancing our knowledge of nutritional ecology through stable isotopes!

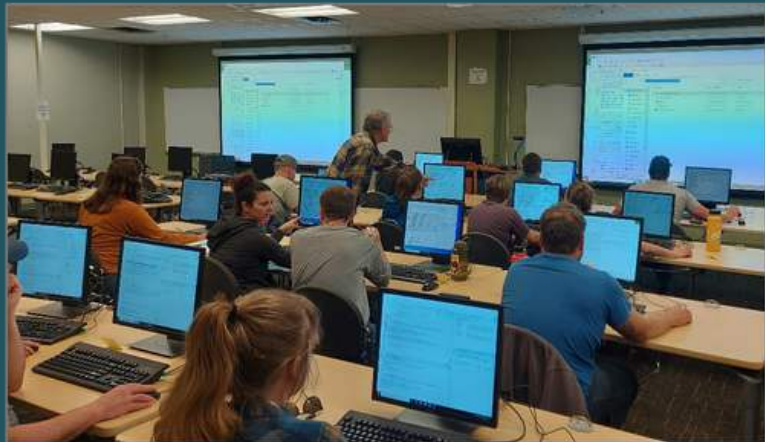
NEWG SKILLS WORKSHOP

The second NEWG skills workshop, devoted to Measuring Forage Quality and Quantity for Herbivores, was held in Kingsville, Texas during November 2023. Instructors/organizers for the workshop included David Hewitt (CKWRI), Rachel Cook (NCASI), Lisa Shipley (WSU), Ryan Long (UIdaho), Don Spalinger (UAlaska), Michael Barrett (CKWRI), Clare McArthur (USydney), and Deborah Monzingo (IDFG). Susan Smith, Celina Ortiz, and Mario Hernandez were essential in making sure the workshop ran smoothly, and Patience Mateer (UIdaho) handled all the registration details. We are also grateful to 3 sponsors for this workshop: CKWRI (paid for 1 lunch and a social for attendees), NCASI (paid for R. Cook's travel expense plus lodging for 3 instructors), and Lyssy and Eckel Feeds (donated \$500 for a student scholarship).

Attendees of the main 3-day workshop (18 total) included students, agency biologists, a veterinarian, and a professor from 7 states (Alaska, Idaho, Oregon, Texas, Montana, Nevada, and Wyoming) and 2 provinces (British Columbia and Ontario). The main workshop consisted of a series of interrelated lectures, field exercises (hands-on techniques for quantifying forage biomass and quality), lab and computer exercises, problem-solving sessions (e.g., data issues, experimental design), and case studies showing how the techniques have been used to address management/research questions. The optional half day, new to the workshop in 2023, had 12 attendees. We used tame white-tailed deer and feeding trials to offer a hands-on demonstration of relationships among plant traits, foraging behavior, diet selection and nutrient intake. In addition, we explored the ability of commonly used surrogates of nutrition (e.g., remotely sensed metrics) to quantify variation in forage characteristics at broad scales. Breanne Green and Sydney Rye did an amazing job preparing the deer and setting up the foraging trials, and attendees really enjoyed these exercises.

We are planning for our next workshop to be held in Alaska during the summer of 2025. If you have any questions, please contact Rachel Cook (rachierae@gmail.com).

NEWG SKILLS WORKSHOP



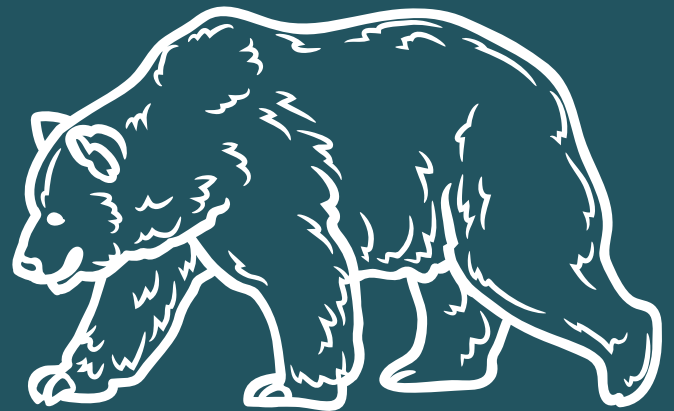
TWS Conference Travel Grant Winners

Ashlee Jean Mikkelsen

This year, I had the opportunity to attend my first national TWS conference. I not only attended the meeting, I present my research, got helpful critiques, saw other presentations that inspired new questions and perspectives, and had a lot of fun reconnecting with old colleagues – all thanks to a scholarship from the nutritional ecology workshop. That may sound a bit cheesy, but it's true. I moved to Europe two years ago to begin my PhD research, and maintaining connections with colleagues in the US has been challenging. Collaborating across the globe often means having meetings at inconvenient hours and feeling alienated from your research community. And travelling between Europe and the US is expensive, time-consuming, and the jetlag takes a toll on the body. This is why it was such a relief to receive a scholarship to help with travel costs to the conference. The "Animal foraging, food webs, and nutrition: linkages revealed using stable isotopes" symposium was extremely educational and really inspired me to think about my research in a different way. I also spent time meeting with collaborators that I had never met in real life, made new connections with potential future collaborators, and enjoyed the comfort of catching up with old friends. Opportunities like these, in which researchers that have gone on to be part of different communities are able to return to their old research communities and exchange ideas is, maybe, one of the most powerful parts of these conferences. And I am truly grateful for the opportunity.



Photo courtesy of Ashlee Mikkelsen



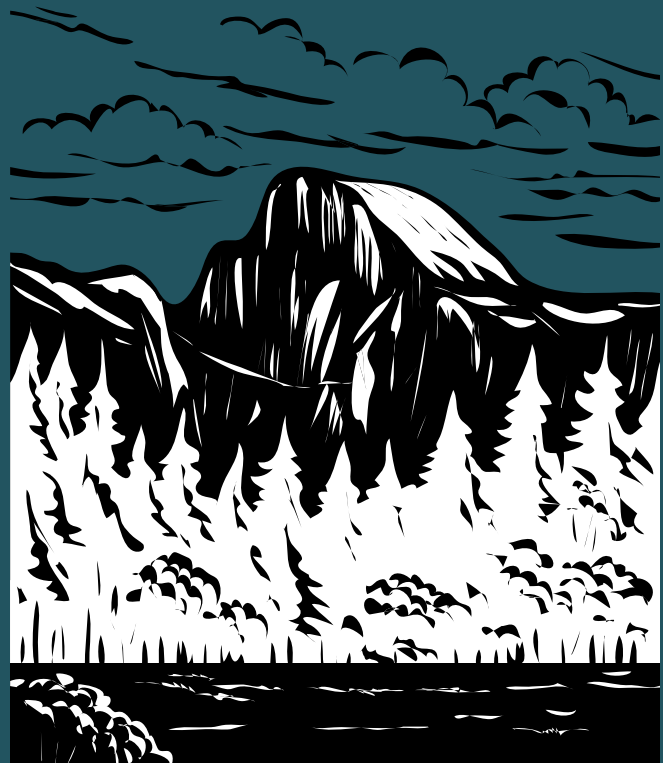
TWS Conference Travel Grant Winners

Alexi C. Besser

The scholarship helped fund my travels to present an invited talk in the “Animal Foraging, Food Webs, and Nutrition: Linkages Revealed Using Stable Isotopes” symposium sponsored by the Nutritional Ecology Working Group at my very first The Wildlife Society Annual Meeting this past fall. I enjoyed reconnecting with colleagues and collaborators, as well as meeting many new colleagues and hopefully future collaborators. The symposium sponsored by NEWG was a particularly great venue for this. I also appreciated interacting with the multidisciplinary community of NEWG and TWS at the conference. I specialize in basic research, so it was really interesting to learn more about applied work and what goes into conservation and management decisions. I always think about how my research fits into a bigger picture, but attending the conference gave me a new perspective on how I can better connect with a broad network of wildlife biologists and managers. Overall, I had a great time at my first TWS meeting and would like to thank the NEWG for helping make my participation possible.



Photo courtesy of Alexi C. Besser



TWS Conference Travel Grant Winners

Miranda Hopper

This past fall, I was lucky enough to be awarded the Nutritional Ecology Working Group (NEWG) Travel Scholarship for my trip to Louisville, Kentucky for the national meeting of The Wildlife Society. I used the scholarship funds to help support the cost of flights and other travel-related purchases. At the conference, I presented my research focused on thermal drivers and consequences of foraging behavior and diet selection in white-tailed deer. Throughout the conference, I was able to catch up with old friends and make new connections with fantastic researchers from across the country. I also attended the NEWG meeting and signed up to serve on the Student-New Professional Committee. This was my first working group meeting, and it was really exciting to get involved in a professional group at the national level. I am looking forward to working more closely with the NEWG in the future!



Photo courtesy of Miranda Hopper

NEWG Workshop Travel Grant Winners

Laura Mengak

Thank you to the Nutritional Ecology Working Group for awarding me a registration grant for the "Measuring Forage Quantity and Quality for Herbivores" skills workshop! I am a Ph.D. student at Oregon State University studying social and ecological threats impacting rangelands with a focus on understanding diet overlap between elk and cattle. I am new to the field and new to studying herbivores, so this workshop provided an excellent introduction to nutritional ecology and the tools and techniques for measuring forage. The workshop was an interesting and engaging way to learn, and it provided me with resources to incorporate into my own research project. I have consulted the shared lecture slides on more than one occasion! I also enjoyed meeting and interacting with the workshop participants and instructors and appreciated the opportunity to learn more from both. An escape from the rainy Oregon winters to a much sunnier and warmer south Texas was also appreciated!



Photo courtesy of Laura Mengak

NEWG Workshop Travel Grant Winners

Lindsay Millward

Thank you to the NEWG for providing me with a scholarship that facilitated my attendance at the 2023 NEWG workshop in Kingsville, TX! An important element of my PhD dissertation evaluates how variability in diet quality and composition of desert bighorn sheep in the Mojave Desert in southern California influences patterns of water use at the individual and population levels. I greatly appreciated the unique opportunity to have dedicated time to learn the fundamental theories that form the discipline of nutritional ecology, along with the hands-on experience of measuring forage biomass, conducting various lab assays, engaging in case studies, and observing the captive white-tail deer at the Caesar Kleberg Wildlife Research Institute. Furthermore, the workshop environment provided a fabulous opportunity for networking with the instructors and participants. Some of these new relationships have now developed into supportive, collaboration opportunities. These were exactly the outcomes I was hoping for when I applied for the scholarship, and I am looking forward to continued membership and service with the TWS NEWG.

Jocelyn Biro

I am a PhD student at Wilfrid Laurier University in Waterloo, Ontario investigating moose forage quantity and quality after forest harvesting and wildfires in central British Columbia. I was fortunate to be one of the NEWG scholarship recipients for their 2023 Skills Workshop. The workshop blended lectures and hands-on-sessions that broadened my understanding of nutritional ecology and provided practical skills that have directly benefited my ongoing research. From learning how plant structure impacts nutritional quality to practicing field sampling techniques and laboratory methods for analyzing samples, the workshop equipped me with a comprehensive toolkit that I will use throughout my career. As I delve into writing my research proposal, I find myself regularly referring to my notes and have a much clearer understanding of how best to interpret my data. Learning from leading nutritional experts alongside fellow researchers was an absolute pleasure. I am grateful to the NEWG for their support and the organizers for making the workshop such a fantastic experience.



Photo courtesy of Lindsay Millward



Photo courtesy of Jocelyn Biro

Recently Published Research

The list of recent publications provided is for informational purposes only and inclusion on the list should not be considered endorsement by NEWG.

Ferraro, K.M., Welker, L., Ward, E.B., Schmitz, O.J., Bradford, M.A. (2023). Plant mycorrhizal associations mediate the zoogeochemical effects of calving subsidies by a forest ungulate. *Journal of Animal Ecology*.

Mikkelsen, A.J., Hobson, K.A., Sergiel, A., Hertel, A.G., Selva, N., Zedrosser, A. (2023). Testing foraging optimization models in brown bears: Time for a paradigm shift in nutritional ecology? *Ecology*.

O'Connor, L.M.J, Cosentino, F., Harfoot, M.B.J., Maiorano, L., Mancino, C., Pollock, L.J., Thuiller, W. (2024). Vulnerability of terrestrial vertebrate food webs to anthropogenic threats in Europe. *Global Change Biology*.

Qian, G., Zhang, L., Chen, Y., Xu, C. (2023). Fish microplastic ingestion may induce tipping points of aquatic ecosystems. *Journal of Animal Ecology*.

Ranney, S.H., Chipps, S.R., & Wahl, D.H. (2023). Effect of feeding history on metabolic rate of largemouth bass (*Micropterus nigricans*): implications for bioenergetics models. *Canadian Journal of Zoology*.

Smith, J.B., Greenleaf, A.R., Oakleaf, J.K. (2023). Kill rates on native ungulates by Mexican gray wolves in Arizona and New Mexico. *The Journal of Wildlife Management*.

Zhang, X., Xiang, X., Liu, T., Wu, Y., Wu, Y., Wang, G., Song, X., Li, C. (2024). Semi-captive Przewalski's gazelles cope with winter adversity by adjusting their gut bacterial communities. *The Journal of Wildlife Management*.