

# NUTRITIONAL ECOLOGY WORKING GROUP

## WINTER 2020 NEWSLETTER



VOLUME 2, ISSUE 1

## MESSAGE FROM THE CHAIR

Over the last three months, the board of the Nutritional Ecology Working Group has been working to define our vision. To this end, we've developed a draft mission statement to better define our purpose and guide our growth and development as a working group. A copy of our draft mission statement is included in this newsletter and we hope you'll take the time to review it and send us your feedback.

In addition to developing the draft mission statement, we've been brainstorming a variety of projects for NEWG to undertake. These projects are detailed in the "Projects in Progress" section of the newsletter and include: a proposed symposium for the national TWS conference; compiling resources for budding and seasoned nutritional ecologists on the NEWG website; and developing a forage-sampling design workshop.

Since November, membership in the Nutritional Ecology Working Group has increased to 27, and recruiting new members remains a high priority. However, there are 41 individuals on this email list, which means we still need many of you to officially join the working group through your [wildlife.org](http://wildlife.org) account. Membership dues are only \$5 annually and provide a budget for working group initiatives and projects, including covering costs of our working group meeting at national TWS conferences and eventually we hope to offer travel and research grants for students. **Also, remember that we need to have 30 members by March 2021 and 50 members by March 2022 to advance from interim status to regular status.** Please reach out to your colleagues and encourage them to join our working group and help strengthen our collective efforts to advance the science of nutritional ecology.

On behalf of all NEWG officers, take care and don't forget to spread the word!

Kristin Denryter

Chair, Nutritional Ecology Working Group

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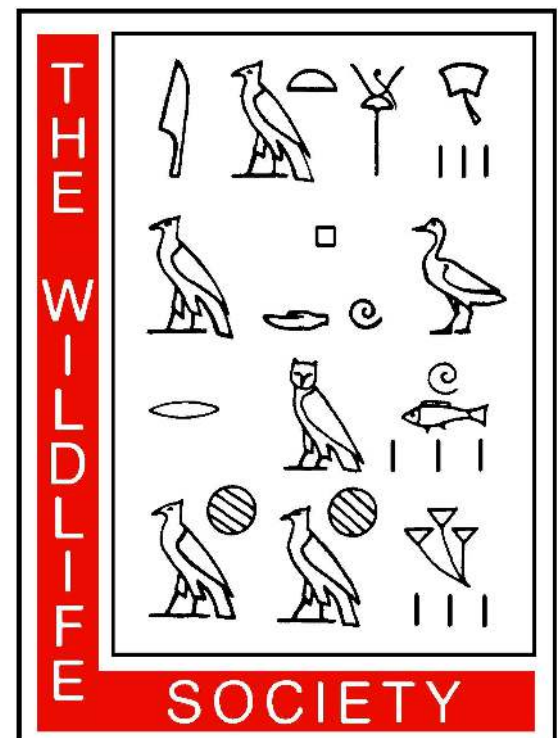
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## FEATURED COMIC

BY: BRITTANY WAGLER

# WHO KNEW ECOLOGISTS WERE SO INTO



Surfing the mottled wave: generalist predators trade availability of neonatal ungulates  
K. Huggler et al.

Surfing on a green wave - how plant growth drives spring migration in the Barmacle Gooos Branta leucopsis  
Siddhant Das Gupta, Julia Stahl, 2 authors, Rakodi H. Dasari

The greenscape shapes surfing of resource migratory herbivore  
Ellen O. Aikens, L. Monteith

Green-wave surfing increases fat gain in a migratory ungulate  
Fenna O. Middleton, Jeroed A. Merkle, Douglas E. McMahon, John G. Cook, Rachel C. Cook, P. J. White, Matthew J. Kaufman

Large herbivores surf waves of green-up during spring  
Jeroed A. Merkle, Kevin L. Monteith, Ellen O. Aikens, Jhall Sawyer, Brandon M. Soudrick and Matthew J. Kaufman

Stochastic simulations reveal few green-up wave surfing populations among spring migrating herbivorous waterfowl  
Yin Wang, Lei Cao, Anthony D. Fox, Richard Palmer, Larry Griffin, Cal Mitchell, Arthur D. Middleton, Moan, David Cabot, Zhengping Xu, Kwabigye Baidyan, Yuelin Zhang, Qianying Moan, David Cabot, Zhengping Xu, Kwabigye Baidyan, Andrew Kolbaso, Jack P. van der Jeugd, Jesse Mosen, Liang Chen, & Ian Nathan

A Migratory Northern Ungulate in the Pull of Spring: Jumping or Surfing the Green Wave?  
Richard Blahod, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

Kodiak brown bears surf the salmon red wave: direct from GPS collared individuals  
William Oleson, William Lesock, Jonathan B. Armstrong, Jack A. Stelfox

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## ANNOUNCEMENTS & UPCOMING EVENTS!

**National TWS Conference** | Louisville, KY Sept. 27–  
Oct 1, 2020

- Call for Proposals for workshops, symposia and panel discussions; **January 6–March 13, 2020**
- Call for Abstracts Includes Contributed Oral and Poster presentations, Student Research in Progress posters; **February 19–April 17, 2020**

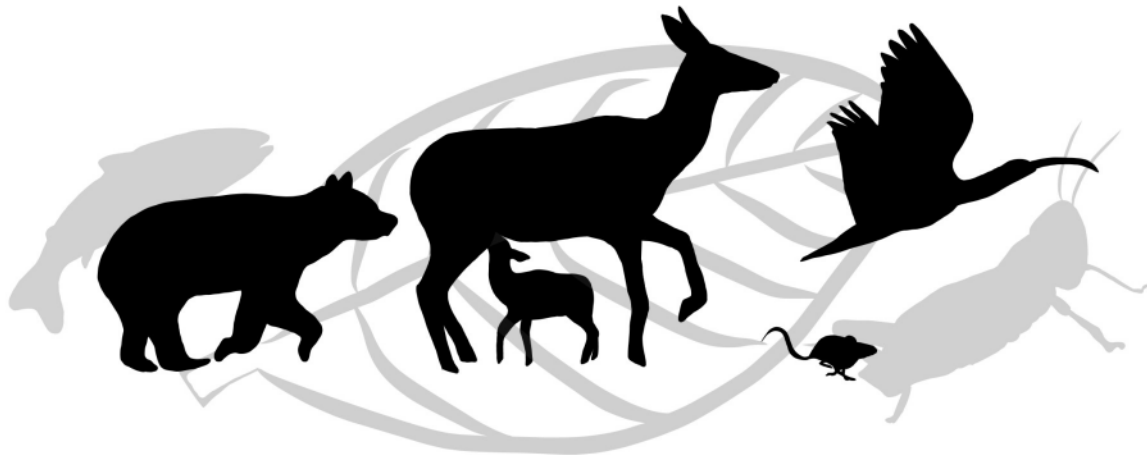


**TWS Symposium** | The Nutritional Ecology Working Group will be proposing a symposium at the national conference!

**Skills Workshop** | The Nutritional Ecology Working Group is working on developing a skills workshop. See the Projects in Progress section for more information.

We have a new NEWG Logo!

# THE WILDLIFE SOCIETY



# NUTRITIONAL ECOLOGY WORKING GROUP

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

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## PROJECTS IN PROGRESS

**TWS Symposium** | Nutrition is fundamentally important to life, with influences on biological processes from cell signaling to growth and reproduction. Although nutrition operates at the level of the individual, nutrition can scale up to have population-level effects that are relevant to conservation and management. In the proposed symposium, experts break down the nuanced and complicated mechanisms through which nutrition influences populations and demonstrate new tools and methodological advances that make it more feasible than ever to link nutrition with population performance. Proposed topics include how nutrition operates through density-dependent and density-independent pathways to affect populations; how nutrition interacts with behavior and environmental factors to influence demographic rates; developing and mapping foodscapes; tools for estimating nutritional parameters and modeling population-level responses; and best practices for monitoring and managing nutrition in wildlife management. Stay tuned for more information on the speakers, topics, and ideas that we will cover in this session.

**Skills Workshop** | The Nutritional Ecology Working Group will be hosting its first skills workshop in late spring 2021. The workshop will focus on sampling food abundance and quality in a 1- to 2-day workshop consisting of lectures and hands-on sampling, processing and analyzing. The location and date have yet to be determined but shortly we will be sending out a questionnaire to researchers working in this field—the goal of which is to make certain we have a workshop that will provide the most useful content and is set up to be accessible to as many folks as possible. If you would be interested in attending a skills workshop, please fill out [this survey](#) to indicate your interests by **April 15, 2020**. In the meantime, if you have any inquiries or questions, please contact [Dr. Rachel Cook](#).



**Left:** In the sagebrush steppe of western Wyoming, Dr. Kevin Monteith measures rump fat and muscle thickness on a mule deer in December 2019. Photo: Christopher Martin. **Right:** In the boreal forests of northwestern Ontario, Dr. Rachel Cook collects detailed nutrition and foraging data from a tame caribou in order to evaluate the nutritional value of plant communities to lactating female caribou and their calves. Photo: Philip Walker.

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## TWS Leadership Institute Now Accepting Applications

The Wildlife Society's flagship leadership training program, the Leadership Institute, is now accepting applications for its Class of 2020! The program begins in May and concludes at TWS's Annual Conference in Louisville, Kentucky in October. This year's Leadership Institute cohort will engage with Leadership Institute alumni and TWS Council members, work collaboratively to understand a wide array of leadership styles and perspectives, develop stronger written and verbal communication skills, and learn how to better navigate the conservation field. Participants will receive complimentary registration and a travel grant to attend the conference.

Participation in the Institute is geared toward early-career professionals, typically individuals 2 to 3 years out of school (either undergraduate or graduate school), currently working full-time in a wildlife professional position, and with demonstrated evidence of their leadership potential. All applicants must be members in good standing of TWS and a chapter or section of TWS. The selection committee will be seeking to create a diverse group of participants, with selection based upon:

- An excellent academic record
- Demonstrated leadership capability or potential
- Demonstrated level of excellence in current position
- Commitment to and involvement in TWS

Preference will be given to individuals who are certified as Associate Wildlife Biologists® or Certified Wildlife Biologists®, or who have submitted such an application to TWS.

Learn more and apply [here](#). The application deadline is **March 16, 2020**.

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## LAB ANALYSES FOR NUTRITION WORK

Have you ever struggled to determine where to send your forage samples for analyses of nutritional quality and wished there was a place you could check to see what your options are? You're not alone. Few labs in the USA complete all nutritional assays for ruminants and these assays though similar in name can vary from lab to lab. We're working to compile a comprehensive list of laboratories in the USA and Canada that offer *in vitro* digestibility assays, bomb calorimetry and sequential fiber analysis, tannin precipitation, etc. and provide a key to help you determine which assays you need and which labs can perform those assays. Have some good tips on where you've sent forage samples? Email us at [tw nutritional.ecology@gmail.com](mailto:tw nutritional.ecology@gmail.com) and we'll add them to our list.



Above: Sampling forage quality at Starkey Experimental Forest

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## CALL FOR FEEDBACK!

We are looking for feedback on our mission statement. If you have any thoughts, ideas, or contributions to the below statement, please email us at [tws.nutritional.ecology@gmail.com](mailto:tws.nutritional.ecology@gmail.com)!

**Mission Statement** – Nutrition is vitally important for every life process of every living creature from optimizing growth and reproduction to decreasing susceptibility to disease, predation, and death. The science of nutritional ecology links food resources available to an animal with individual- and population-level performance and involves data collected on nutritional requirements, food availability and quality, foraging and life history strategies under different environmental conditions, and body mass and condition. When links between the food resource and the population are made, managers can predict how changes in one will impact the other – thus providing a clear path for managing food resources in a way that optimizes population performance, or alternatively, for managing animal populations to optimize the health of ecosystems. As global issues such as climate change, loss of habitat, and the spread of disease and parasites are increasingly impacting wildlife populations, the need for understanding the degree to which populations are limited by nutrition, and how we can best manage for nutrition, is increasing as well.

The Nutritional Ecology Working Group aims to serve as a forum to facilitate communication and exchange of information related to advancing the science of nutritional ecology as it pertains to conservation and management of wildlife populations. Though the goals of this group may morph and grow over time, increasing education through symposiums, sampling workshops, online classes, development of university curriculum, providing mentors for graduate students, and providing online resources for benchmark papers, lab work, and vegetation databases will be critically important.

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## RECENT & RELEVANT LITERATURE

Proffitt, Kelly M., et al. (2019). "A century of changing fire management alters ungulate forage in a wildfire-dominated landscape." *Forestry: An International Journal of Forest Research* 92.5. 523-537.

Shively, R. D., J. A. Crouse, D. P. Thompson, & P. S. Barboza. (2019). Is summer food intake a limiting factor for boreal browsers? Diet, temperature, and reproduction as drivers of consumption in female moose. *PLoS ONE*, 14.

Smiley, R. A., C. D. Rittenhouse, T. W. Mong, & K. L. Monteith. (2020). Assessing Nutritional Condition of Mule Deer Using a Photographic Index. *Wildlife Society Bulletin*. In press.

Watter, K., G. S. Baxter, T. Pople, & P. J. Murray. (2019). Effects of wet season mineral nutrition on chital deer distribution in northern Queensland. *Wildlife Research*, 46(6), 499-508.

Smythe, S. E., D. M. Sanchez, & C. W. Epps. (2019). "Contrasting Winter Moose Nutritional Carrying Capacity Models on a Dynamic Landscape." *Journal of Fish and Wildlife Management* 10.1. 163-179.

Schrempp, T. V., J. L. Rachlow, T. R. Johnson, L. A. Shipley, R. A. Long, J. L. Aycrigg, & M. A. Hurley. (2019). Linking forest management to moose population trends: The role of the nutritional landscape. *PLoS One*, 14(7).

Kautz, T. M., J. L. Belant, D. E. Beyer, B. K. Strickland, & J. F. Duquette. (2020). Influence of body mass and environmental conditions on winter mortality risk of a northern ungulate: Evidence for a late-winter survival bottleneck. *Ecol Evol.* 00: 1– 12.

Schepker, T. J., T. LaGrange, & E. B. Webb. (2019). Are waterfowl food resources limited during spring migration? A bioenergetic assessment of playas in Nebraska's Rainwater Basin. *Wetlands*, 39(1), 173-184.

Richardson, K. M., E. H. Parlato, L. K. Walker, K. A. Parker, J. G. Ewen, & D. P. Armstrong. (2019). Links between personality, early natal nutrition and survival of a threatened bird. *Philosophical Transactions of the Royal Society B*, 374(1781), 20190373.

**Have you recently published on nutritional ecology? [Send us a link](#)  
to your article to be included in the next newsletter!**

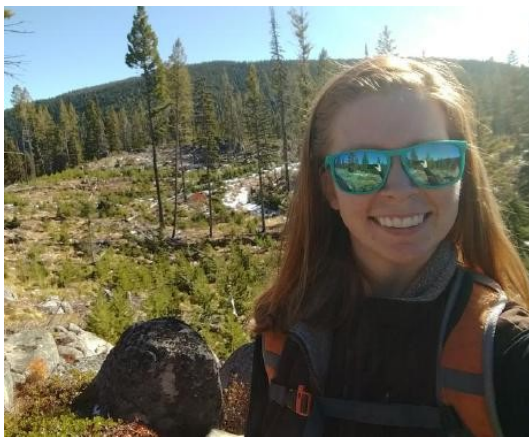
# MEET THE BOARD



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DAN THOMPSON, **WEBSITE, OUT-REACH, AND COMMUNICATIONS**



TAYLER LASHARR, **NEWLETTER EDITOR**



TOM STEPHENSON, **BOARD MEMBER**



RACHEL COOK, **BOARD MEMBER**

## WANT TO GET INVOLVED?

If you are interested in helping out with the Nutritional Ecology Working Group, please [email](#) us!

