



School of Natural Resources Alumni Newsletter



University of Nebraska–Lincoln

Spring 2014

From the Director's Desk

Almost a year into my time at UNL's School of Natural Resources, I have been provided with enormous challenges and opportunities. The great challenge is that unlike many programs or departments at universities with a well-defined academic focus, the school represents a conglomeration of professions and career opportunities for our students. Compared to many academic units, SNR encompasses a much more horizontal approach, and although natural resources can be a difficult entity to define, we need to try to avoid the problem of "being a mile wide and an inch deep." Modern universities talk a great deal about interdisciplinary research and education. I think the team in SNR can be proud to represent that model and is way ahead of its time. As we move SNR forward into the future, we aim to advance our mission of providing Nebraska and the rest of society with the broad view of natural resources and its place in society. Whether someone is an applied climate science, restoration ecology or geography major, he or she is part of something bigger: the SNR family. In addition, we believe that once part of SNR, always part of

SNR. To all of our alumni and friends, please remember that we have done great things together in the past and we hope to continue to do great things with you in the future.

As we see the mission and function of universities evolve over time, the relationship between SNR and our alumni and friends also must evolve. As you can see, SNR now has an alumni and friends coordinator, Karen Jensen. Please think of her as the person who keeps our extended family connected. We hope to hear from you and please do not hesitate to offer suggestions on how we might keep SNR front and center in natural resources management in Nebraska and beyond.



*John Carroll
Director*

A Note from Our Alumni Coordinator



*Karen Jensen
Alumni Coordinator*

Greetings alumni and friends of the School of Natural Resources (SNR)! I am Karen Jensen, Alumni and Friends Coordinator for the school. I'm very excited to be working with you as we seek to build a greater presence within the school and beyond. I look forward to

partnering with you to find ways to support our current students and research.

Contact me at kjensen4@unl.edu if you would like to be more connected and involved with SNR. Your time, knowledge and expertise with us are extremely valuable. Don't forget to keep us in the loop with any exciting news or developments in your life. We invite you to visit our webpage at <http://go.unl.edu/snralumni>.

From drilling into the soil and groundwater below the surface, to conserving and sustaining the flora and fauna on the surface, to studying the climatological aspects of the atmosphere around us, to humans interacting with it all, we really do encompass "From Earth to Sky and Everything in Between."

Paul Hanson named SNR associate director

Paul Hanson became associate director of UNL's School of Natural Resources on Jan. 1.

SNR director John Carroll said broad thinking, proactive style and engaging interactions were characteristics he looked for when considering candidates for the associate director role.



Paul Hanson

"The associate director position in a large and complex organization like SNR is extremely important and contributes significantly to administration and management of the unit," Carroll said. "What we have with Paul is an individual who has carved out an impressive scientific career with a reputation for being very collegial. He is someone who gets things done."

Hanson is an associate professor affiliated with the geography/GIScience faculty and the geology and soils faculty. He joined the university in 2005 and succeeds Tala Awada, professor of plant ecophysiology, who stepped down from the associate director position in December 2013. Awada will continue serving as a faculty member.

As associate director, Hanson will be responsible for managing an array of administrative projects. Among those tasks will be overseeing the implementation of a strategic sustainability plan for the university's geography program.

"I am closely involved with two programs – geography and the Conservation and Survey Division – that have both been moving through transitional phases, but I believe they have the potential to be strong facets of the school," Hanson said. "I expect that I will learn an appreciable

amount during my tenure, and believe most of these goals should be accomplished through collaboration and teamwork."

Hanson's research interests focus on the responses of rivers and dune systems to climate change. Since coming to UNL, Hanson has taught physical geography courses and has lead natural resources field trips to the Boundary Waters in Minnesota and Big Bend National Park in Texas.

"I especially like the balance between the research and teaching portions of my position," Hanson said. "I've developed a field course and have been involved in co-teaching classes where experiential learning is the focus and find these endeavors to be both rewarding and challenging. I am an avid traveler and enjoy seeing students experience new environments for the first time."

Looking to the future, Hanson said he's excited about the opportunity to help SNR grow and evolve.

"I'm very interested in assisting and collaborating with Dr. Carroll, our faculty, staff and students to move SNR forward."

— *Mekita Rivas, Natural Resources*

Nebraska Master Naturalist program announces 2014 training sessions

Have you ever wanted to explore Nebraska's natural resources but didn't know where to start or whom to speak with? That's where the Nebraska Master Naturalist program comes in.

"We work with our many conservation partners to provide fulfilling educational and volunteer opportunities to our Master Naturalist volunteers," said Annabel Lee Major, Nebraska Master Naturalist program coordinator.

Launched in 2009, the program is designed to engage adults ages 19 and up with Nebraska ecosystems, plants, animals and more. Participants explore Nebraska's natural beauty alongside scientists, faculty and natural resource professionals and train to become certified Master Naturalists.

"The level of contribution that our volunteers have made to natural resource conservation is substantial," Major said. "Since our first training in 2010, we have certified 207 Master Naturalists."

In that time, the Nebraska Master Naturalists have contributed 17,000 hours of service valued at more than \$350,000.

"With the majority of them just getting started, they have taken on significant projects, including organizing volunteers for educational projects and serving as volunteer technicians," Major said.

Training sessions are offered every year and the upcoming 2014 training schedule is as follows:

- Thursdays through Saturdays from April 3-26 in Omaha and Lincoln
- Thursdays through Saturdays from May 1-17 in Omaha and Lincoln
- Sunday through Saturday from June 8-14 at the Niobrara Valley Preserve

Sessions include topics such as conservation biology and ecology, grassland ecosystems, reptiles/amphibians, insects and birds, among many others. Registration is \$250 and discounts may be available. People interested in the program are encouraged to apply online at <http://naturalist.unl.edu> or by calling 308-382-1820.

Following the selection process, participants complete 60 hours of hands-on training both in the classroom and in the field. After completion of the training session, participants are asked to complete 20 hours annually of volunteer service and eight hours of continuing education in the natural resources to attain and maintain certification.



Since the Master Naturalist program is an extension outreach program within UNL's School of Natural Resources, many SNR faculty members have been involved in the development of the program's curriculum and training sessions.

"With more SNR faculty getting involved in our program, the opportunities are boundless," Major said. "There are many new experiences to be had and great new people to meet."

— *Mekita Rivas, Natural Resources*

From UNL to UC Berkeley, Baldocchi finds success on road of academia

It's been more than 30 years since Dennis Baldocchi was a student at UNL, but that doesn't mean the lessons he learned at the university have been forgotten. In fact, they continue to influence his life and profession to this day.

"I teach courses on the biosphere, ecosystem ecology, biometeorology and advanced topics on biometeorology," said Baldocchi, professor of

biometeorology at the University of California, Berkeley. “My teaching reflects many of the lessons I learned as a student at UNL.”

The son of a farmer who drove tractors through walnut orchards, Baldocchi was exposed to nature from an early age. This exposure led to his studying of atmospheric science as an undergrad at UC Davis.

“There I became curious about agricultural meteorology and interactions between plants, weather and climate,” he said. After receiving “Vegetation and the Atmosphere” by John Montith for a graduation present, Baldocchi’s postgraduate path was decided.

“That sealed the deal,” he said. “This was the topic I was going to study in grad school.”

In 1979, Baldocchi earned his graduate degree in agricultural engineering, followed by his doctoral degree in bio-environmental engineering in 1982.



Dennis Baldocchi

Three of Baldocchi’s advisers and dissertation readers went on to receive the American Meteorological Society’s award for outstanding achievement in biometeorology: Norm Rosenberg, emeritus professor of meteorology; Shashi Verma, emeritus professor of natural resources; and John Norman. The fourth reader, Bill Splinter, was a member of the National Academy of Engineering.

“I was lucky to be at UNL when the program on agricultural meteorology and climatology was at its zenith – (it was) maybe one of the best in the

world at that time,” he said. “One could not ask for a better Ph.D. adviser than Shashi Verma. He was ahead of his time as a micrometeorologist – his class on atmospheric turbulence was fantastic and I still draw on my notes in teaching my own graduate courses.”

When he wasn’t hitting the books, Baldocchi could be found in the field – the soccer field, that is.

“I loved playing soccer, so I started an intramural soccer team,” he said. “Our team included many students from Iran and Nigeria, so it had an international flair, too. It also showed me I could balance life, fun and science.”

Baldocchi also discovered a love for jazz while in Lincoln. “I became a disc jockey at the public access radio station, KZUM, with a show called ‘Free as the Wind,’” he said.

After UNL, Baldocchi worked as a postdoc at the National Oceanic and Atmospheric Administration (NOAA) Atmospheric Turbulence and Diffusion Lab in Oak Ridge, Tennessee.

While there, Baldocchi was charged with studying radiative transfer models, which predicted the light environment through forest canopies.

“Ironically, this project involved using the CUPID model of John Norman, the third professor on my Ph.D. committee,” Baldocchi said. “So this project gave me the opportunity to round out my skills, which included experimental measurements and biophysical modeling – all from lessons from my UNL professors.”

In the late ‘90s, Baldocchi and his colleagues were making long-term flux measurements, which inspired him to start the global FLUXNET project with Riccardo Valentini in Italy.

FLUXNET is “a network of regional networks” that coordinates regional and global analysis of observations from micrometeorological tower sites.

The flux tower sites use eddy covariance methods to measure the exchanges of carbon dioxide, water vapor and energy between terrestrial ecosystems and the atmosphere.

“Today, this network has grown to several hundred sites worldwide,” Baldocchi said. “Again, (it is) an effort that could not have been started without my training in Lincoln.”

Since arriving at UC Berkeley in 1999, Baldocchi has showed no signs of slowing down. In addition to his teaching work, Baldocchi coordinates the FLUXNET project and serves as co-investigator of the American network Ameriflux. He is also the editor-in-chief of the *Journal of Geophysical Research: Biogeosciences*.

“I have a thriving lab that is focusing on studying trace gas exchange of oak savanna ecosystems and greenhouse gas exchange of wetlands – the methane fluxes I measure were also inspired by the pioneering work of (Shashi) Verma,” Baldocchi said. “(I want to) keep moving forward, keep learning new skills and not look back. Colleagues are less interested in what you have done as what you are doing and will do.”

— Mekita Rivas, *Natural Resources*

Young Alum Spotlight: Tyler Goeschel

When Tyler Goeschel graduated from the School of Natural Resources in May 2013, he wasted no time in moving onward and upward.

“I’m always trying to better myself in one form or another,” Goeschel said. “Just over this last winter break, I learned to tie a bow tie and solve a Rubik’s Cube.”

Armed with that undeniable thirst for self-betterment, he headed east to the University of Vermont after earning his undergraduate degree in environmental studies.

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“I have a lot out there in front of me professionally,” said Goeschel, now a first-year master’s student in natural resources at UVM. “I’d like to teach at a university one day and continue doing relevant research in the environmental sciences realm.”

Goeschel is funded as a research and teaching assistant under his adviser Carol Adair, assistant professor of climate change and adaptation at UVM.

“I really enjoy the change of scenery and all of the great people I’ve met so far,” Goeschel said. “Burlington is a progressive and conscious city that understands its role and impacts on the environment and is actively pursuing improvements in many areas of city functionality. Surrounding the city are many natural areas perfect for exploring, so hiking during summer and now snowboarding during winter have been great.”



Tyler Goeschel

When it comes to his schoolwork, Goeschel said he spends a lot of time conducting research and collecting data for his master’s thesis project, which centers on greenhouse gas (GHG) emissions in various agroecosystems throughout Vermont.

“I am taking GHG samples biweekly, directly from these farmers’ soil, to determine what impact various management practices have on the GHG emissions of their soil,” he said.

Goeschel’s interest in soil research stemmed from an internship at the Lincoln location of the USDA

Agricultural Research Service, which is housed right on UNL's East Campus.

"I really just kind of got pulled into the soil realm by searching out research experiences and landing at the USDA," he said. "I think the internship jump-started my walk down the soil specialist path (and) led me to start studying soils more in depth."

During his undergraduate career, Goeschel was actively involved with SustainUNL, ASUN's Environmental Sustainability Committee and Garden Gang. He also served as the ASUN non-traditional student representative for the 2012-2013 academic year.

"I met the best people because of joining SustainUNL and then it just sort of snowballed from there," he said. "Soon I was volunteering with them and the network of good people I grew around myself was indispensable."

Goeschel said that his involvement with multiple student organizations, in addition to his SNR education, contributed to both his academic success and his personal development.

"I had a great experience during my time in SNR," he said. "I met lots of great people there and feel lucky to have crossed paths with so many good folks."

— *Mekita Rivas, Natural Resources*

Prof, alumnus team up to further evaporation research

A bout with insomnia helped Joe Szilagyi answer some long-lingering research questions.

"Last summer I had a brainstorm event at night when I was half-awake and half-asleep," said Szilagyi, research hydrologist and associate professor in the School of Natural Resources.

For years, Szilagyi wondered whether he could prove or disprove a certain hypothesis in evaporation research. The hypothesis is two-fold: A wetland will maintain a spatially constant surface temperature at any moment, in addition to maintaining a temporally constant surface temperature.



Joe Szilagyi

"Nobody knew the answer for the second question," Szilagyi said.

Based on his previous work, Szilagyi guessed that the answer for both parts of the hypothesis was affirmative.

"But I could never prove it directly with temperature measurements," he said.

During that nocturnal brainstorming session, Szilagyi realized that center-pivot irrigated crops could provide the direct proof he'd been looking for. The height of the crops, their size and large degree of homogeneity in terms of vegetation type and moisture status were all traits that made them ideal research subjects.

"The only problem was I still did not have any idea how I could take the temperature of the center-pivot irrigated land," Szilagyi said.

Moreover, the temperature data would have to be remotely sensed. Although satellite-derived temperature data existed, their spatial resolution was too coarse for Szilagyi's research purposes. The average irrigated crop circle in Nebraska has a diameter of about 700-800 meters – and Szilagyi could only use the half that faced the prevailing wind.

"It seemed like a hopeless situation," he said.

Hopeless, that is, until he conducted an Internet search the next day.

"I stumbled upon beautiful aerial photography of center-pivot irrigated fields taken with a thermal camera by a company called Cornerstone Mapping," Szilagyi said. "And guess what – the company was located in Lincoln. I could not believe my luck."

Szilagyi worried he couldn't persuade the company to share its images for his research, especially since he didn't have any formal funding to offer as compensation.

Still, meeting with Cornerstone Mapping's owner, Aaron Schepers, was worth a shot.

"He's a UNL alumnus who turned out to be a wonderful person," Szilagyi said. "He immediately agreed to cooperate with me and for free."

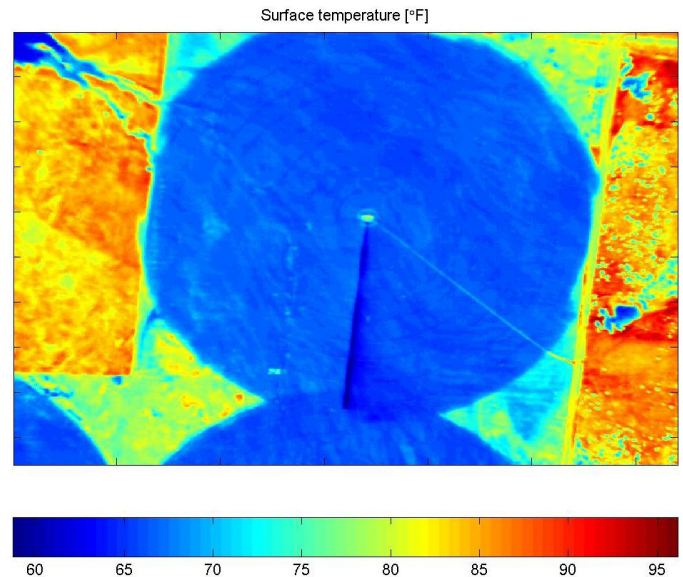
Schepers said that his airborne thermal imagery was a perfect fit for Szilagyi's application.

"I thought if Joe can help improve crop modeling by using my thermal imagery, I was contributing to the future success of research for optimizing crop production," Schepers said.

From the thousands of images collected across Nebraska by Cornerstone Mapping, Szilagyi selected 90 that were obtained with the company's highly sensitive thermal-infrared camera.

"If I could show – with the high-accuracy surface temperature values of these images – that the irrigated land's surface temperature did not change with distance from the edge under strong heat-advection conditions, then I would have strong direct proof for the first part of the hypothesis," Szilagyi said.

And indeed, on average the wet surface temperature changed less than 0.2 degrees between the edge and the center of the irrigated crop circles.



As for the second part of the hypothesis, Szilagyi had to prove that these wet surface temperatures would stay the same during the progression of a drought, provided solar radiation and wind would not change much.

Although mean wet surface temperatures are hard to obtain, they can be replaced by wet-bulb temperatures, since one is constant as long as the other is under unchanging solar radiation and wind conditions.

"Basically, I had to show that these wet-bulb temperatures stayed constant when solar radiation equaled a predefined value under different surface moisture conditions to be found by roving central Nebraska from the Sandhills to the neighboring irrigated lands," Szilagyi said.

The experiment worked. Wet-bulb temperatures – and therefore wet surface temperatures – stay constant as the environment dries out under largely constant solar radiation and wind conditions.

"So in the end I felt doubly satisfied with the outcome," Szilagyi said. "The only question remaining was if other researchers would be similarly convinced and recommend publication of the results."

In early January, Szilagyi was notified that this research – co-authored by Schepers – is set to be

published in *Geophysical Research Letters*, the pre-eminent journal within the geophysics field.

"It is definitely an honor to have a study accepted for publication in GRL," Szilagyi said. "I feel really blessed to have been able to work at UNL for more than 15 years, where I have been provided the conditions necessary for undisturbed research."

— *Mekita Rivas, Natural Resources*

Endless ambition: Geography alum shows no signs of slowing down

In the 17 years since Karen Morin earned her doctoral degree in geography from UNL, she's been one busy alum.

"I never run out of project ideas, I'm pretty ambitious in that way," Morin said.

For the past decade, Morin has been active with the Lewisburg Prison Project, a prisoner rights group in Pennsylvania. Her work with that group has led to an interest in critical prison studies.

"I've got a number of projects in the works that deal with what I'm calling the 'spatial violence' of American prisons and jails, as well as a bigger historical-geographical study of the American 'carceral past,'" Morin said.

Currently, Morin is a professor of geography and serves as associate dean of faculty in the social sciences at Bucknell University, a primarily undergraduate liberal arts school in Lewisburg, Pennsylvania.

"Bucknell is a very different kind of place than UNL," she said. "As such, it can feel worlds away from Oldfather Hall, Sheldon Art Gallery and Husker football. That can still be challenging, but I love my work and feel privileged to do it, especially to have the ability to stay active in geographical

research while trying to help social science faculty at my university do their jobs well."

Morin's work has spanned several historical geography tracks over the years, including the history of geographical thought and literacy in North America; 19th century travel writing; British and American post-colonialisms; the geography of religion; and most recently, critical prison studies.

During her time at UNL, Morin encountered several professors who helped guide her toward the study



Karen Morin

of feminist historical geography. She lists David Wishart, professor of geography; Jeanne Guelke, professor emerita of geography; and Frances Kaye, professor of English, as instrumental in her developing an interest in academia.

"It was meeting David and Jeanne who really inspired me toward academia, as both were pioneers in American historical geography, of indigenous geography and feminist geography respectively, and who got me thinking about relationships between sense of place, personal identity and history," Morin

said. “Fran Kaye was also such an inspiration, both as a person and as a thinker.”

At the time, Kaye served as the editor of the Great Plains Quarterly and Morin took on an editorial assistant position at the publication while she worked on her graduate studies.

“Through that job, I not only learned what was going on intellectually in many related research fields, but also gained an appreciation for the Great Plains aesthetic that I frankly didn’t have growing up as a ‘town girl’ from Lincoln,” Morin said.

Morin’s discovery of feminist geography ultimately sealed her interest in becoming an academic. She also credits the “big changes” happening throughout the academy in the 1980 and ‘90s – relating to women’s writing, work, lives and travels – that further piqued her fascination with academia.

“I was excited to be a part of that,” Morin said.

Her first academic job out of Nebraska was as a visiting lecturer in geography at the University of Waikato in Hamilton, New Zealand. From there, Morin took a job as an assistant professor of geography at Bucknell, where she’s been ever since – with the exception of another year at the University of Waikato a few years later, a couple of Fulbrights and fellowships in other places along the way.

Morin has contributed to numerous publications and scholarly articles, and is the author of “Civic Discipline: Geography in America, 1860-1890” and “Frontiers of Femininity: A New Historical Geography of the Nineteenth-Century American West.”

“My education at Nebraska prepared me well for my career,” Morin said. “I would tell students to tune into your sixth sense that tells you when you’ve found what you love to do, and that resonates with the progressive social changes you’d like to help make happen in the world.”

– *Mekita Rivas, Natural Resources*

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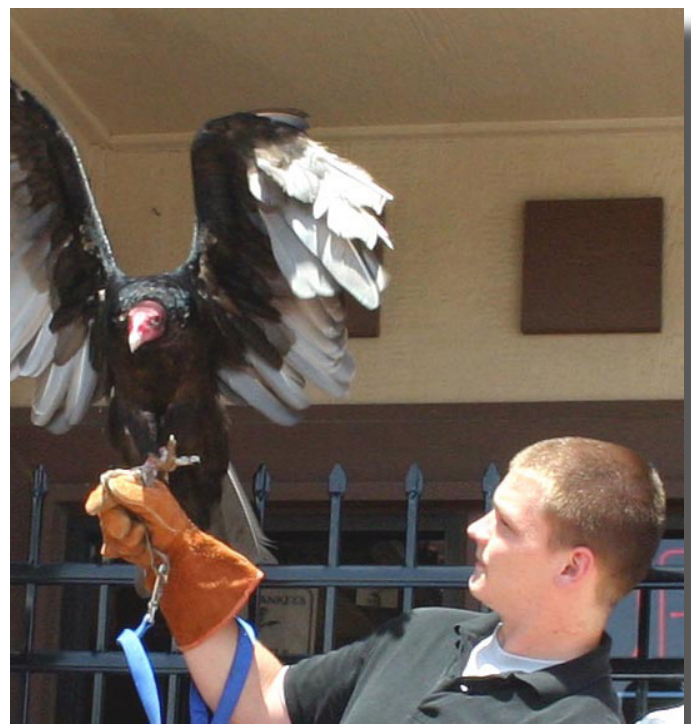
SNR bird feeders commemorate student’s life, passion

Without a doubt, Brian Smith loved birds.

“He got into birds working for us,” said Dave Titterington, owner of Wild Bird Habitat Store in Lincoln. “He really got into birds.”

Dave and his wife Linda recalled that Smith was a dedicated employee who had worked at their store for more than a year.

“He was fantastic,” they said. “He was a hard worker. He was one who if we needed somebody and it didn’t interfere with school, he’d be there.”



Brian Smith

Smith’s interest in birds led the freshman fisheries and wildlife major all the way to Puerto Rico for a study abroad trip in March 2008.

While there, students visited a tropical rainforest, swam on coral reefs, visited caves and learned about the island’s many ecosystems.

Larkin Powell, professor of conservation biology and wildlife ecology, led the trip with Mark Pegg, fisheries ecologist and associate professor in the School of Natural Resources.

“It’s a trip that quickly gets students into new systems that are nothing like Nebraska, but the same ecological principles apply,” Powell said.

Two days into the trip, Smith suddenly passed away from an undiagnosed heart defect. He was just 20 years old.

“I had not had him in classes, but he already impressed me as a student eager to learn and see new things,” Powell said. “He had a lot of energy and unclouded enthusiasm.”

Prior to the trip, Smith had begun attending UNL Wildlife Club meetings. The club’s annual banquet took place a few weeks later and members wanted to commemorate Smith in some way.

“The club now has a student achievement award in Brian’s name,” Powell said.

The Titteringtons, Smith’s parents, fellow students, professors and friends planned fundraisers to create the Brian M. Smith Memorial Scholarship Fund. The endowed fund through the NU Foundation helps students attend the College of Agricultural Sciences and Natural Resources.

“We did some fundraising at the store,” Dave said. “We made a donation with the money that we collected and a donation from Wild Bird Habitat.”

But the Titteringtons’ generosity didn’t stop there. They also donated two bird feeders to the School of Natural Resources, which were dedicated in Smith’s honor. The feeders are located north of Hardin Hall.

“They continue to provide bird seed for free in memory of Brian,” Powell said. “I’m not sure how much money this has been over the years, but it is not chump change.”

Mary Bomberger Brown, research assistant professor, keeps the feeders filled and stops by the Titteringtons’ store whenever the bird seed supply gets low. She shares the task with the Wildlife Club.



Brown said that she’s seen more than 20 species of birds eating the seed from and spending time near the feeders.

“I like the idea that we’re keeping a ‘wild space’ near SNR, the idea of urban wildlife and the idea of remembering an SNR student,” Brown said.

When asked how much bird seed they’ve donated over the past six years, the Titteringtons said they didn’t know a specific figure.

“That’s kind of a hard question,” Linda said.

“I would think probably over 500 pounds,” Dave added.

For the Titteringtons, those kinds of things just don’t matter. What matters is Smith’s memory – and keeping that alive and well.

“If something ever happens to the bird feeders, we’ll repair them and if we can’t repair them, we’ll replace them,” Dave said. “As long as I’ve got the business, this is perpetual.”

– *Mekita Rivas, Natural Resources*

Fundraising

Private support is integral to the success of SNR and its programs. We are grateful to our many donors whose investments help SNR evolve into a world-class natural resources educator.

Give now:

<https://nufoundation.org/unl/institute-of-agriculture-and-natural-resources/colleges-and-areas/college-of-agricultural-sciences-and-natural-resources/casnr-academic-units/school-of-natural-resources>

Featured Fund: Brian M. Smith Memorial Fund

Your gift to this fund supports an endowed scholarship for second-year or above students in the College of Agricultural Sciences and Natural Resources, with preference to students pursuing the areas Smith himself loved, fisheries and wildlife. <https://nufoundation.org/-/unl-college-of-agriculture-and-natural-resources-brian-m-smith-memorial-scholarship-fund-01106380>

Get Involved



Your time, knowledge and expertise with us are extremely valuable to us. Whether it's staffing a booth at one of our outreach events or being a guest lecturer, there are plenty of ways to stay active within SNR even after you've earned that degree.

Share Your Story

Are you working your dream job?
Are you doing innovative research?
Are you living abroad?

We love hearing what our alumni are up to! Share your story so we can share it with the rest of the SNR community.



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