

On Call

A MAGAZINE FOR FRIENDS OF THE UNIVERSITY OF WISCONSIN SCHOOL OF VETERINARY MEDICINE



Kitty Control

Students and alumni snip away at cat overpopulation

Wild Work

Partnership provides care for injured and orphaned wildlife



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Veterinary Medicine
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CONGRATULATIONS, CLASS OF 2019!

***DID YOU KNOW** that the UW School of Veterinary Medicine
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Features



Cut and Save

Since October, the UW School of Veterinary Medicine has partnered with Madison Cat Project to host monthly spay and neuter clinics at the school. With approximately 60 surgeries completed at each daylong clinic, the events are a bustle of activity, helping students gain valuable hands-on experience while combatting cat overpopulation.

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Wild Work

From owls to opossums, songbirds to snapping turtles, the Dane County Humane Society's Wildlife Center provides comfort and care to nearly 4,000 native wild animals annually with assistance from UW Veterinary Care. The goal is to release healthy animals back into their natural habitats and train veterinarians to be better prepared to care for wildlife.

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Nico Poet DVM'21 holds a feline patient ahead of surgery at a monthly spay and neuter clinic for cats hosted at the UW School of Veterinary Medicine in partnership with Madison Cat Project, a nonprofit organization that provides cat adoptions and spay and neuter services. (Photo: Meghan Lepisto)



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**School of
Veterinary Medicine**
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Exciting Times

This is an exciting time for the UW School of Veterinary Medicine. As I write this, Governor Tony Evers has just signed into law the 2019-21 state budget and we have fantastic news: the school's expansion project was included in the budget. With this result, our building is officially funded through the generosity and foresight of our legislators and governor, and the support of friends like you. For that, we breathe a collective sigh of relief and send a massive thank you!

Garnering momentum for this expansion has been a long and arduous haul. The first discussions about building an addition to the school were in 2002.

Fast forward to 2012, and we were able to convince University of Wisconsin-Madison leadership of the importance of our project, leading to a feasibility study conducted by Flad Architects. This study laid the groundwork for our efforts with campus and UW System leadership, political leaders, alumni, friends, and clients, highlighting the critical nature of this project in our ability to serve the citizens of the state of Wisconsin.

Whether it's the state-of-the-art veterinary medical care we provide at our teaching hospital, the research that we conduct benefiting both animal and human health, or the instruction we provide to the next generation of veterinarians and biomedical researchers, the school is dedicated to serving our state and beyond. By doubling the size of our small animal hospital, significantly enhancing our large animal hospital, and improving our teaching and research spaces, this expansion will deliver desperately needed space and position the school to continue to excel in all that it does in the coming decades.

We have already taken several steps to advance the building project. We are wrapping up design for the school's new parking ramp, with construction scheduled to begin this fall and be completed in December 2020. And we have selected the architects and engineers for the school's expansion. We will be working with Flad Architects and Affiliated Engineers, Inc. over the next 18 months to design our new building and components of the current building that need to be remodeled.

Of course, our day-to-day work also continues at a clip. In this issue of On Call, we highlight partnerships with Madison Cat Project, hosting monthly spay and neuter clinics at the school to give students valuable hands-on experience while combatting cat overpopulation, and with Dane County Humane Society's Wildlife Center, providing veterinary medical care to an array of wild animals admitted and rehabilitated there. You'll also find examples of our research advancing animal and human health, from studies investigating the impact of human respiratory viruses in wild chimpanzees to the causes of preeclampsia in pregnant women to the advancement of flu research over the last many decades.

I hope you have a fantastic remainder of your summer and please feel free to stop by the school whenever you have an opportunity.



Mark D. Markel

On Call SUMMER 2019

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Mark D. Markel, Dean

Ask a UW Veterinarian



Cranial Cruciate Ligament Concerns

This expert response comes from **Peter Muir**, board-certified veterinary surgeon and the Melita Grunow Family Professor of Companion Animal Health.

Question: A year ago, my Labrador retriever blew out one of his CCLs. At that time, I was told there was a 50/50 chance the other CCL would rupture within six months. It has been a year since his successful surgery to repair the rupture and he has not had a rupture of the other CCL. Does that mean it will not rupture?

—Waldo, Port Washington, Wisconsin

Answer: Cruciate ligament rupture (CR) in dogs is a complex disease with heritability of about 0.33, meaning approximately one-third of disease risk is genetic and two-thirds is environmental. Environmental factors include spaying or neutering dogs and obesity. The Labrador retriever is a breed with high genetic risk of disease; about six percent of all Labradors will develop CR in their lifetime.

There is overwhelming evidence that a non-contact mechanism explains most CR cases, meaning rupture is the end-stage of progressive tearing of collagen fibers in the ligament tissue. Rupture occurs when the weakened tissue is no longer able to resist forces on the knee joint associated with normal daily activity. In the majority of patients, ligament failure is a slow process that likely occurs over many months. In patients with high genetic or environmental risk, fiber rupture progresses more rapidly.

Second CRs are very common, particularly in breeds of dog with high genetic risk. When thinking about this risk, we know that the genetic contribution to CR is explained by many risk variants across the genome that are common in the general population. Individual dogs with CR will have a unique group of risk variants that work together to influence disease development. This type of genetic architecture, combined with variable environmental influences, causes considerable variation in clinical presentation and the time to a second rupture. The 50/50 probability of developing a second CR within six months is based on the average scenario. Due to variability between individual dogs, your dog is still at risk of a second rupture, even years after diagnosis.

We recommend owners of affected dogs consult their veterinarian to discuss personalized care that could include radiographic screening of the knees, modification of environmental risk factors, and early surgical treatment. Performing surgery after onset of lameness and knee pain, but before complete CR, is associated with better long-term outcomes.

Questions

Have a question for our veterinary medical experts?

Please send it to the *On Call* editor at oncall@vetmed.wisc.edu.

We cannot guarantee responses to all submissions. For any urgent pet health issue, please contact your veterinarian directly.

Socializing with the SVM

Friends of the school sharing their thoughts (and pets) on social media...



How many veterinarians does it take to do a puppy eye exam??
Ivy's pups get special care.

—OccuPaws Guide Dog Association
Via UW Veterinary Care Facebook
(@uwwveterinarycare)



Exciting day, Molly finished her last round of chemotherapy! ♥♥ ...
Thank you to the staff at UW Veterinary Care for taking such good care of her! Dr. Magee was Molly's doctor, so we had to get a picture with her.

—Laura Ann
Via UW Veterinary Care Facebook
(@uwwveterinarycare)

Human Respiratory Viruses Continue to Spread in Wild Chimpanzees

Less than two years after the first report of wild chimpanzees in Uganda dying as a result of a human “common cold” virus, a new study has identified two other respiratory viruses of human origin in chimpanzee groups in the same forest.

Writing in the journal *Emerging Microbes and Infections*, a team led by **Tony Goldberg**, a professor in the UW School of Veterinary Medicine and an expert on emerging pathogens in animals, describes two simultaneous outbreaks of respiratory illness in chimpanzees in the wild.

The outbreaks affected different chimpanzee communities in the same forest at the same time, between December 2016 and February 2017, prompting suspicion that the outbreaks had a common cause.

One group, consisting of 205 chimpanzees known as the Ngogo community in Uganda’s Kibale National Park, was especially hard hit, with almost 44 percent of the animals suffering from respiratory illness. Twenty-five chimps in the Ngogo group died during the outbreak. The other group of chimpanzees, known as the Kanyawara community and consisting of 55 animals, experienced an outbreak where a little more than 69 percent of the animals were affected by respiratory illness, but none died of the disease.

In both instances, scientists caught a break through the quick recovery of

the bodies of deceased chimps for post-mortem exams by veterinarians, allowing for “a rare direct comparison,” Goldberg says.

A dead individual from the Ngogo group, a 20-year-old female, showed evidence of sudden viral illness. A 22-year-old female chimp from the Kanyawara community had been ill but was recovering when she was killed by members of her group for unknown reasons. Her body showed evidence of a more prolonged disease course.

Viral genetic material from the Ngogo chimps revealed infection by metapneumovirus, which is known to cause deadly disease in chimps across Africa. Surprisingly, the Kanyawara chimps contained the genetic material of a different virus, parainfluenza virus 3.

According to Goldberg, a human origin for both viruses can be inferred because the viruses in the chimps were nearly identical genetically to common strains found in people. “These are very common human viruses that circulate worldwide and cause ‘the sniffles’ in kids,” he says.

A group led by Goldberg was also the first to identify another human cold virus infecting and killing chimps in Uganda in late 2013 — rhinovirus C.



This two-year-old chimp named Betty succumbed to a human common cold virus in Uganda.

“It seems like a plethora of common and mostly benign respiratory viruses of people can be transmitted to chimps in this part of the world, causing disease and sometimes death,” Goldberg notes. “Local villagers, researchers, tourists, and many other people visit forests where apes live. All it takes is one person unwittingly carrying a ‘common cold’ virus to spark a deadly outbreak in apes.”

Governments and conservation groups across Africa are working to avoid similar outbreaks. Current regulations include quarantine periods for people entering the forest, the use of face masks and hand sanitizers, and strict policies about distances that tourists must keep from apes.

“The more we can learn about these outbreaks,” says Goldberg, “the better prepared we will be to prevent them.”

Terry Devitt

Tick Tracking

In time for summer tick season, a new, free smartphone app is available to help better understand and limit people’s exposure to disease-carrying ticks.

The Tick App (available at thetickapp.org) helps scientists track the threat of tick-borne diseases by asking users to log daily entries of whether they encountered ticks or not and where. It also serves as a prevention tool, with information on how to prevent tick bites, identify and remove ticks, and a tick

risk forecast for the user’s location.

The app was developed by the Midwest Center of Excellence for Vector-Borne Disease — co-directed by **Lyric Bartholomay PhD’04**, professor in the UW School of Veterinary Medicine — in collaboration with the Northeast Center of Excellence and the Center for Health Enhancement Systems Studies.



SVM Assists Animal Shelters with Canine Brucellosis Response

When two dogs transported from South Korea to animal shelters and rescue groups in Wisconsin tested positive for canine brucellosis this spring, the Shelter Medicine Program at the UW School of Veterinary Medicine worked closely with affected organizations to implement precautionary measures.

“This is a low-risk situation, but in an abundance of caution, the dogs have been placed in quarantine to even further reduce the risk,” Shelter Medicine Program Director **Sandra Newbury DVM’03** said in March. “The shelters are on top of this and

are working with our program, guided by state health officials.”

Canine brucellosis is a reproductive disease in dogs caused by *Brucella canis*, a bacterium mainly transmitted during breeding or birth. The infection is found worldwide but is rare in pet dogs in the United States. The bacteria are transmissible to people through contact with infected fluids, but human cases are very uncommon. It is also not considered a risk to the agricultural industry.

In total, six Wisconsin animal shelters and rescue organizations received

26 dogs transported from South Korea by Humane Society International.

These dogs, in addition to shelter dogs that were potentially exposed to them, were quarantined until they were no longer considered at risk.

The Shelter Medicine Program advised the shelters on quarantine procedures and helped to open a temporary quarantine facility. This allowed the shelters to remain open or resume their normal operations as quickly as possible, while minimizing any risk to the public.

Meghan Lepisto

Overheard

Recent commentary by and about those at the SVM

“I was one of those kids that grew up wanting to be a veterinarian, but was always drawn to the unique biology that different types of animals exhibit. When I was exposed to biomedical research as an undergrad, I realized the benefits that a comparative biology perspective could bring to the field.”

–**LaTasha Crawford**, assistant professor of anatomic pathology, in a new faculty focus Q&A. Read the interview: go.wisc.edu/Crawford

“As a rule of thumb, if you can bend or flex the object, it is less likely to fracture a tooth. If something is too hard for you to chew, then you should not allow your pet to chew it.”

–**Graham Thatcher**, clinical assistant professor of dentistry and oral surgery, advising that bones and other hard objects not be given to pets because they can cause dental fractures. For more tips: go.wisc.edu/dentalhealth



“The vet students are so much more adept at taking the health samples than we are. It’s a good experience for them and it’s tremendously helpful for us.”

–Professor **David Drake**, coordinator of the UW–Madison Urban Canid Project, which studies city-dwelling foxes and coyotes and helps urbanites coexist with these wild neighbors. SVM students assist in monitoring the health of animals tracked by the research effort.

“If we understand how it affects one cancer, we may be able to understand more globally how it impacts other types of cancer.”

–Assistant Professor **Lisa Arendt DVM’02** in a FOX 47 special report on her research into obesity’s role in breast cancer risk. The findings carry potential applications for targeted therapies and broader cancer treatment and prevention.



TRACY HAMMOND

U-Rah-Rah

Four paws up and congratulations to **Harlie**, who in April won our inaugural Bucky's Final Fur pet bracket challenge from among a field of all-star competitors. According to her people, Harlie is an accomplished athlete in the sport of "reverse fetch" (she throws the ball down the stairs, then waits for it to be tossed back up to her).

Collaboration Sheds Light on Preeclampsia

The cause of preeclampsia or how to prevent the disorder isn't yet known, but a recent scientific review provides new insights.

Preeclampsia is a medical condition that affects pregnant women, raising a mother's blood pressure and threatening both her life and her baby's. Most women can deliver a healthy baby if preeclampsia is detected early and treated with regular prenatal care.

The scientific review, published in the journal *Reproduction*, reveals an emerging role for androgen hormones in the development of preeclampsia. Specifically, the UW–Madison research team — which included **Sathish Kumar**, an associate professor of comparative biosciences in the School of Veterinary Medicine, and **Jay Mishra**, a postdoctoral research associate in Kumar's lab — discovered that

testosterone levels in the circulation of preeclamptic women are elevated approximately two- to three-fold and positively correlate with vascular dysfunction. The authors found that preeclampsia is also associated with elevated expression of placental androgen receptor genes.

In addition, animal models of preeclampsia showed patterns and levels of increases in testosterone mimicking those found in women with the disorder.

"Taken together, the data strongly implicate androgen-mediated mechanisms as an important contributor to clinical preeclampsia," says Kumar. Novel compounds that inhibit excessive androgen action might be useful to reduce the severity of hypertension in preeclamptic patients, he adds.

Jordana Lenon



MEGHAN LEPISTO

Number One: On May 2 at UW Veterinary Care, **Trilly**, a 9-year-old Gordon setter, received the very first shot in the Vaccination Against Canine Cancer Study, a five-year clinical trial at the SVM and two other schools of veterinary medicine to evaluate a vaccine strategy for the prevention of cancer in dogs. With more than 800 patients enrolled, it is the largest clinical trial conducted to date in veterinary medicine.



DAVID STLUKA

All-American: The School of Veterinary Medicine's incoming Class of 2023 will have a national champion in its ranks with **Annie Pankowski**. One of the most decorated players in UW–Madison history, Pankowski capped her on-ice career with the Wisconsin women's hockey team in March by leading the Badgers to an NCAA championship. Her work off the ice has also earned recognition. She was a finalist for the 2019 Hockey Humanitarian Award for her service with Occupaws, an organization that trains and pairs service dogs with the visually impaired. "She's a rock star as an athlete, a student, a volunteer, and a worker in my lab," SVM Dean **Mark Markel** told *The New York Times* this spring.

Be Our Guest

Behind-the-scenes hospital tours, stuffed animal surgical repairs, an array of presentations and demonstrations, animals to touch and feel, guessing games, and so much more. There was something for everyone at the SVM and UW Veterinary Care Open House in April, which drew over a thousand attendees.



WISCONSIN UNION

Mini Moo

In May the Wisconsin Union and UW School of Veterinary Medicine (SVM) unveiled a dairy-inspired, limited edition mini Terrace chair that celebrates the state's agriculture industry and helps support the SVM's building expansion, with a portion of proceeds benefiting the building project.

The Holstein cow-printed keepsake can be purchased at the Memorial Union and Union South, or online in the Union's Terrace Store, through October 2019 or while supplies last. To buy online: go.wisc.edu/cowchair

Cut and Save

SVM students and alumni snip away at cat overpopulation



By Meghan Lepisto

COURTESY MADISON CAT PROJECT

These curious barn cats were sterilized at a Madison Cat Project spay/neuter clinic, where a majority of patients come from outdoor cat colonies. The left “ear tip” on each cat designates that they’ve been spayed or neutered.

Within 90 seconds, **Adam Bauknecht DVM’09** can neuter a cat. A routine spay takes him ten minutes or less.

Bauknecht estimates that he’s so far performed at least 10,000 of these procedures and he has no plans of letting up. Given that a mature female cat can breed two to three times per year, delivering an average of four kittens with each litter, he has to work quickly to keep pace.

“We can’t shelter our way out of pet overpopulation; we’re going to solve

this problem by getting animals spayed or neutered, so that’s a high priority for me,” says Bauknecht, who serves as medical director for Madison Cat Project, a nonprofit organization that provides cat adoptions and spay and neuter services.

Since October, the group has partnered with the UW School of Veterinary Medicine (SVM) to host monthly high-volume spay and neuter clinics at the school. About 50 veterinary medical and veterinary technician students, joined by more

than a dozen veterinarians, veterinary technicians, and other volunteers, work feverishly to spay or neuter about 60 cats over a span of eight hours on one Saturday each month.

According to **Robb Hardie**, clinical professor of small animal general surgery and associate dean for professional programs at the SVM, the collaboration has created new opportunities for veterinary medical students to gain practical experience that complements skills learned in the classroom. “Volunteering with

Madison Cat Project clinics provides students with valuable hands-on experience that is easy to access and happens on a regular basis,” he says.

The response from students has been so enthusiastic that there is at times a waiting list to assist. This eagerness delights Bauknecht who, as an SVM student, volunteered at earlier Madison Cat Project clinics held at other locations.

“Thirteen years ago, when I started helping with this, I was begging classmates of mine to come,” he says. “That we have so much interest in this that there’s now some competition for it is really cool.”



MEGHAN LEPISTO (2)

Kristine McMahon DVMx'22 holds Thelma, a kitten awaiting her spay.



The monthly clinics are a bustle of activity, set up across a variety of stations throughout the large lab space used for teaching anatomy and surgery at the SVM. Near the entrance, cats wait in a lineup of cages that are draped in towels and blankets to help keep the felines calm. Next to them, students prepare vaccinations and pre-surgery medications. One stop over, cats lie on tables as students conduct physical exams; give injections of vaccines, dewormer, and pain medication; and prepare the cat’s surgical site. Meanwhile, a nearby microwave beeps again and again as tube socks filled with rice are heated to keep cats cozy while they await their procedure.

Spread along the other span of the room, surgeries occur one after another, with about 10 happening at once. Room dividers and signs separate “spay land” from “neuter land.” Once a surgery is complete, it’s off to the traffic control station,

where medicine is given to reverse anesthesia and fluids are administered if needed. From there, cats are placed back into their cages, which have since been cleaned, and then moved to the recovery area, where they’re monitored until they head home.

All the while, veterinarians and veterinary technicians drift through the room, supervising, offering guidance and reassurance, and assisting with surgeries.

“We have multiple veterinarians in the area where the neuters are happening and at least one spay table includes a student doing the surgery, with a veterinarian assigned there, talking them through and helping,” Bauknecht explains.

According to **Colette Manley DVMx'22**, “you learn a whole different skill set” working in this

type of high-paced, high-volume environment — “how to prioritize things, communicate quickly and efficiently, and do fast work while still doing good work, which is a skill we need to know very well.”

Manley is one of several clinic student coordinators who help to recruit and manage volunteers and set up the space each month. They work closely with **Karen Hershberger DVM'10**, clinic supervisor and an instructor at the SVM, who has played a role in Madison Cat Project clinics since her time as a student.

Hershberger says the additional surgical experience gained at the clinics and the repetition of performing hands-on skills on many cats helps students

achieve comfort and proficiency. And, she notes, the events provide a refreshing break from coursework.

“The first two years of veterinary medical school can seem very theoretical to students,” she says. “These clinics serve as a reminder of why many of them choose to go to vet school: to help animals. We make a difference to the health of each of these cats.”



The monthly clinics span several stations. Here, a physical exam is performed.

Students must work their way up to performing surgery at the monthly clinics. After helping with other duties at three clinics (and completing the male reproduction portion of the Fundamental Principles of Veterinary Anatomy course), a student is deemed “neuter-eligible.” Third-year students who have completed a spay operation as part of their junior surgery class can also conduct spays.

At a recent clinic in March, seven students performed their first-ever neuters. Thinking back on his own growth in this area, Bauknecht now enjoys the chance to “live vicariously” through students.

“Watching a vet student do a neuter for the first time, seeing them get nervous and then get a big grin on their face, is really rewarding,” he says. “I love working with students as they develop their skills and confidence through surgery.”



A majority of the patients at the monthly spay/neuter clinics come from outdoor cat colonies. Following the Trap-Neuter-Return method advocated by animal sheltering professionals, the cats are humanely trapped by their caretakers, transported to the clinic to be spayed or neutered and vaccinated, and then returned. These interventions stop reproduction, helping to control and, over time, reduce the colony’s population.

During surgery, the top tip of each cat’s left ear is snipped (known as ear-tipping), a painless, widely adopted mark that signals to caretakers or veterinarians that the cat has been spayed or neutered.

Linda Weynand, a Madison Cat Project volunteer who assists clinic clients with cat check-in and pick-up, applauds the dedication of those who care for these cats and have them altered. “The owners have to feed the cats, trap them, and watch them through recovery,” she says. “That’s a



Adam Bauknecht DVM’09, medical director for Madison Cat Project, pets an occupant of the shelter’s well room, where healthy cats reside as they await adoption. Bauknecht has been inspired by students’ enthusiasm for shelter medicine and the monthly spay/neuter clinics. “It’s great to see that passion.”

MEGHAN LEPISTO

commitment. There are a lot of good people out there.”

As Weynand emails with clients after the events, they often share unsolicited appreciation. Among some of the recent feedback: “This is an amazing program to help farm people help barn cats;” “I feel so much better now;” and “I’m in a much better place this spring than I was a year ago.”

At the time of the clinics’ origins over a decade ago, most clients came from Madison or Dane County. Today, a majority are from outside of Dane County and as far as several hours away. Organizers see this as an indication that they’ve helped to control the local cat population and can now serve outlying areas, where access to care for community cats may be more limited.

“The local population that needs care is now not so overwhelming that we and other groups are starting to look elsewhere to see where we can help,” says Bauknecht. In several instances, as veterinary clinics and humane organizations in the region have launched their own spay and neuter events, Bauknecht has helped by sharing advice or surgical equipment. “I don’t want clients to have to drive three hours to come to our place; I want them to be able to go somewhere locally,” he says.

Hershberger hopes that students’ involvement with the clinics opens their eyes to the role they can play in population management.

“As more veterinarians are comfortable working with community cats, these cats, which otherwise would not receive veterinary medical care, will be sterilized and hopefully decrease cat overpopulation,” she says. “I feel strongly that I can make an impact by teaching as many students as possible that they can have a spay/neuter clinic to help community cats when they are out in practice.”



Even after performing thousands of spay and neuter surgeries, Bauknecht hasn’t grown tired of the procedure. “Sometimes I marvel at how do I do this same surgery over and over and not get bored of it?” he says. “To me that’s a good indicator that I’m in the right place.”

Bauknecht’s passion for shelter medicine dates back to his interest in becoming a veterinarian. Before entering the SVM’s Class of 2009, he worked at several animal shelters and volunteered with Madison Cat Project, then known as Dane County Friends of Ferals (the group was founded in 2000 as a feral cat advocacy organization). He continued

to volunteer with the organization throughout his four years at the SVM. When a veterinarian position opened with the group in 2010, he pounced.

Through their shelter facility and a vast foster network, Madison Cat Project works to find homes for cats who might otherwise be euthanized due to behavioral, medical, or other issues. The group has grown from about 200-300 annual adoptions to now adopting out more than 700 cats each year. Bauknecht provides the medical care for all of these animals. He also conducts spay and neuter surgeries for public clients one day each week (in addition to the monthly clinics) and consults with shelters.

“The lion’s share of our cats are transferred from other shelters — cats that they feel are not able to be placed through their shelter because of some

temperament issue or, occasionally, a medical problem that is more than they’re able to deal with,” he says. “Our shelter is smaller and quieter and we don’t have dogs, so that gives the cats a chance to settle in.”

The shelter’s well room, where up to 12 cats reside once they are confirmed to be healthy, is a feline dream. Cats roam free in the space and choose from whatever housing best fits their taste — plastic kennels and cardboard boxes outfitted with fluffy towels and fleece blankets, elevated beds, cat condos, or standard cages with pass-through openings. A variety of toys and scratch pads provide entertainment, while public radio — and the occasional hiss or growl shared between cats — hums in the background.

The chance to be a champion

for cats in need inspires Bauknecht’s work. “Knowing that many of the animals that come here, if we weren’t here for them they wouldn’t get anything — that’s a big part of what drives me,” he says.

Bauknecht completed a graduate certificate in shelter medicine in 2016 and has been encouraged by veterinary medical students’ increasing interest in the field. A 2017 American Veterinary Medical Association survey of new students showed that shelter medicine was their second biggest interest, behind general practice. This excitement is evident at the monthly Madison Cat Project clinics at the SVM; in the months since the school began hosting the events, participation from veterinary medical students has doubled.

“It’s great to see that passion,” Bauknecht says. 🐾

Just the Fix

The violent tornado that ravaged a trailer park in Chetek, Wisconsin, in 2017 brought a growing problem into sharp focus for veterinarian **Angie Ruppel DVM’03**.

“People in the trailer court were [previously] feeding the cats,” she said. “After the tornado came through and homes were gone, there wasn’t anybody left to feed the cats; they were homeless.”

At the request of a colleague, Ruppel, who works three days a week at the Northern Lakes Veterinary Clinic in Cumberland, sprang into action, providing low-cost spay and neuter services for displaced cats.

Ruppel has seen firsthand in her practice the ramifications of an uncontrolled pet population. Feeling like she was providing a valuable service for the community by preventing these cats from reproducing, Ruppel decided she wanted to offer it on a more regular basis and more widely. She invested \$1,000 in a used truck and bought a pull-behind trailer and an old, insulated ice shack. In total, it cost her \$30,000 to set up a basic, on-the-go veterinary surgical suite.

Since offering her first mobile clinic last March, demand has increased. Ruppel operates Purple Cat on her two days off from the vet clinic each week. She brings her trailer to several sites throughout northwest Wisconsin, primarily local humane societies between Eau Claire and Spooner. Occasionally, she sets up a clinic at farms, where cats often reproduce rapidly, reaching into the dozens in a short period.

“It’s a very fulfilling job in so many ways,” she said. “People are so thankful. That makes it worth it.”



For veterinarian Angie Ruppel DVM’03, caring for cats is a family affair.

Purple Cat is geared toward outdoor, farm, feral, stray, and colony cats, along with cat owners who would not otherwise be able to afford to have their animals sterilized at a vet clinic.

Groups of 10 to 15 cats are rotated through the trailer at a time. A space heater keeps the area warm in the winter, and the walls and floors are easily washable.

Ruppel, who already has sterilized thousands of northwest Wisconsin felines, said her ultimate goal is no more unwanted cats. Some humane societies have already seen the difference Purple Cat has made on the stray cat population, she said, but an even clearer picture should emerge in a couple of years.

By Heidi Clausen. This story was published by The Country Today and is reprinted with permission. It has been edited for length; view the original: go.wisc.edu/purplecat



MEGHAN LEPISTO



DC/HS (2)



MEGHAN LEPISTO

Wild Work

By Meghan Lepisto

A snapping turtle who swallowed a fishing hook. A fox with severe mange. A baby owl who fractured a leg after falling from the nest. These are just a few of the nearly 4,000 animals served annually by Dane County Humane Society's (DCHS) Wildlife Center with assistance from UW Veterinary Care's Special Species Service.

The Wildlife Center provides comfort and care to injured or orphaned native wild animals with the goal of releasing healthy animals back into their natural habitats. For the past five years, the UW School of Veterinary Medicine (SVM) has assisted in these efforts by delivering medical care to the animals, in turn training veterinarians to be better prepared to care for wildlife.

At least once a week, UW Veterinary Care faculty, veterinary residents, and fourth-year veterinary medical students visit the center to examine and treat patients. Procedures range from

wound management to soft tissue surgery to endoscopy of internal organs. Between visits, the team consults on cases almost daily by phone or email. Occasionally, especially complex cases are transported to UW Veterinary Care.

"We've improved our veterinary care dramatically through this program," says **Erin Lemley**, wildlife rehabilitation coordinator at DCHS's Wildlife Center.

Lemley is a Certified Veterinary Technician and Certified Wildlife Rehabilitator — a dual perspective that she draws on frequently during rounds with SVM students, delivering bits of wisdom about the intricacies of various species (in 2018, the center admitted 158 different species).

"It's a big plus for students that Erin can share so much," says **Anna Martel DVM'15**, a third-year resident in zoological companion animal medicine.

The experience lets students "see the nuts and bolts of wildlife rehabili-

tation medicine, which they wouldn't get in the normal curriculum or under our normal hospital service," says **Kurt Sladky DVM'93**, a clinical professor of zoological medicine. Practicing veterinarians, whether in general or specialized practice, are likely to encounter many types of wildlife as patients, so "there's a student drive to get exposed to wildlife rehabilitation medicine," he adds.

Galya Fedderly DVM'19 visited the Wildlife Center on multiple occasions as a fourth-year student and appreciated how Lemley and the SVM veterinarians "made the time there didactic," she says. "They gave us information about these wildlife creatures and their needs for rehabilitation, and they helped us work through solutions for each case to prepare us for making our own decisions out in practice."

During a visit in March, Fedderly and classmates helped to treat a goose,



a great horned owl, and two big brown bats and Virginia opossums. One of the opossums (pictured top left) required surgery to repair exposed bone on the tip of her frostbitten tail.

At each step in the surgery, there were opportunities to assist and learn. “It’s tricky to check anesthesia depth on opossums because of their beady eyes,” Lemley advised students around the table. As the operation got underway, she asked “Does somebody want to intubate a possum?” **Mason Saari DVM’19** moved closer, guiding a flexible plastic tube into the animal’s airway and then tying the tube in place.

As the surgery was nearing its end, Lemley encouraged students to look at the opossum’s pouch, a space behind a fold of skin on the abdomen where babies nurse and are held for several months following birth. “You’ve got to see it,” she said.

Once opossum babies outgrow the pouch, they cling for another few weeks on their mother’s back — one of the reasons, Lemley explained to students, that the animal needs a strong, healthy tail. The opossum’s prehensile tail can

grasp and wrap around things, aiding balance.

Each season at DCHS’s Wildlife Center brings a new wave of patients. Spring means lots of baby bunnies and birds, while summer is heavy on turtles.

As turtles seek out nesting sites to lay eggs, they often cross roadways and are struck by vehicles, suffering damage to their shell. Turtle shell fractures can be repaired with metal plates and stainless steel screws, similar to mending a broken bone. Having UW Veterinary Care available for these shell repairs “is a huge advantage,” according to Lemley.

“That’s an area we have advanced with a very good outcome,” says **Christoph Mans**, clinical associate professor of zoological medicine.

Looking to the future, the school hopes to pursue additional opportunities to provide teaching and outreach related to wildlife medicine.

“It’s a symbiotic relationship,” Mans says. “We train future veterinarians and make sure that animals at the wildlife center get the best possible veterinary care.”

A Helping Hand (Or Talon)

When an owl with a diseased eye at DCHS’s Wildlife Center required a CT scan to help guide her treatment, a special fund helped make the otherwise out-of-reach diagnostic tool a financial reality.

Imaging confirmed that surgery to remove the eye was a viable option and ruled out any other illnesses or complicating factors.

The scan was made possible by the Juliette N. O’Malley Wildlife Compassion Fund, which supports SVM efforts to advance the health and well-being of wildlife animals through outreach programs, patient care, training opportunities, and research. **Elizabeth Dill** and her husband **Chris Rowbottom** provided a gift to initiate the fund in 2018, naming the fund in honor of a beloved cat. “Cats and dogs often get the attention and treatment,” says Rowbottom. “We wanted to give wildlife the same support afforded to domesticated animals.”

The fund has already made an impact by allowing for advanced diagnostics and treatment for select, medically indicated cases while reducing any financial barrier for the groups caring for the animals.

“We are passionate about the care and well-being of wildlife and are proud to support those who share a similar kinship with these animals,” says Dill.

To join in contributing, visit supportuw.org/giveto/wildlifeanimals.

Exposing How Flu Crosses the Species Barrier

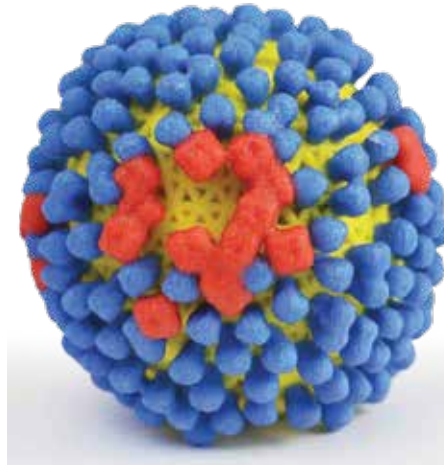
Over Decades, UW Virologists Have Built On Each Other's Discoveries

The 1918 influenza pandemic, known as the Spanish flu, killed almost five percent of the world's population — up to 100 million people. The pandemic reached Wisconsin in September 1918, and by early 1919 the highly contagious and deadly strain of the virus had sickened more than 100,000 Wisconsinites and killed nearly 10,000.

The mass trauma was so acute that the Wisconsin State Board of Health proclaimed at the time that the outbreak would “forever be remembered as the most disastrous calamity that has ever been visited upon the people of Wisconsin.”

The 1918 pandemic prompted intense interest in the disease, including in Wisconsin, placing scientists in the state at the vanguard of flu research over the ensuing century. Their work — along with Wisconsin's national role in flu monitoring — has made the state an unlikely central stage in the ongoing story of what humans know about influenza.

Three of Wisconsin's better-known flu scientists over the past half-century are **Bernard Easterday MS'58, PhD'61**, **Christopher Olsen**, and **Yoshihiro**



A 3D print depicts the surface components of an influenza virus particle that allow it to infect human cells.

Kawaoka, all of whom are affiliated with the University of Wisconsin School of Veterinary Medicine (SVM). They spoke about their work at an October 2018 lecture for the Wednesday Nite @ the Lab series on the UW–Madison campus.

Easterday is a professor emeritus of pathobiological sciences and dean emeritus of the SVM. In the mid-20th century, he was among a group of scientists around the world who were keenly interested in documenting the

host species of influenza and whether and how influenza crosses species. By the 1970s, these researchers, including Easterday, had confirmed the presence of influenza viruses in pigs, humans, ducks, chickens, turkeys, horses, and terns. They strongly suspected that the disease could cross species, but had so far been unable to document a clear case of interspecies transmission.

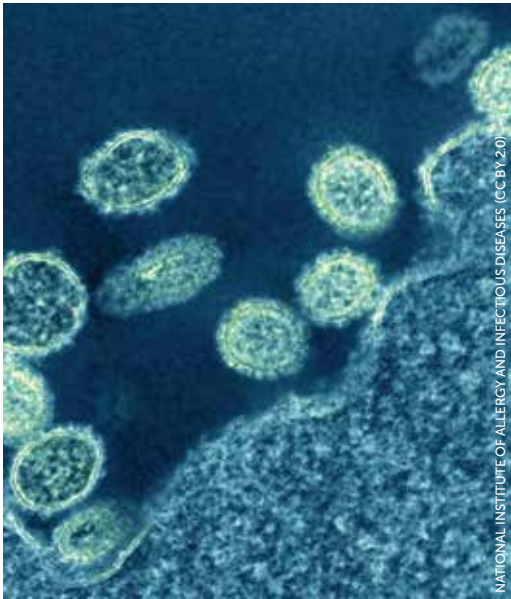
“There was considerable evidence that people who had been in contact with pigs had been infected,” Easterday said during the talk, “because when they were tested they had antibody in their serum which indicated yes, they had been infected.” So, when he heard from a veterinarian friend about a case near Brodhead in which influenza had stricken hogs at a farm where at the same time a worker there had fallen ill, Easterday jumped into action.

Yet decades after the Brodhead discovery, there were only 50 known cases of pig-to-human transmission of influenza. Olsen, a professor emeritus of pathobiological sciences at the SVM and director of a student certificate program at the Global Health Institute

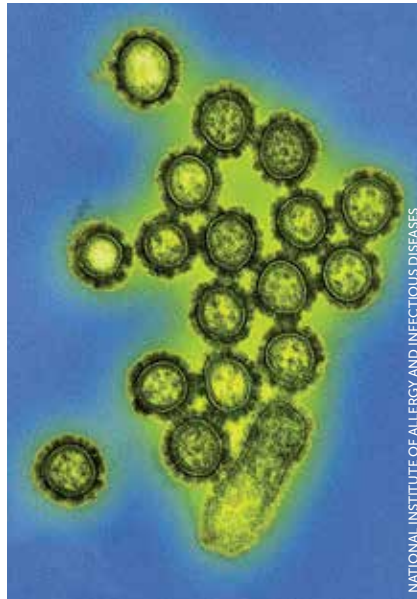
NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES (CC BY 2.0)

Key Facts

- Influenza is thought to originate in waterfowl, including wild ducks. Because of the unique way the virus replicates its genetic information, influenza can quickly evolve within host organisms, making it better suited to jump between species. Influenza has been documented in a wide range of species, from chickens and turkeys to marine mammals and humans.
- The first time the transmission of influenza from pigs to a human was confirmed was in Brodhead, Wisconsin, in 1976. UW–Madison veterinary medicine professor emeritus Bernard Easterday made the discovery.
- The swine flu pandemic of 2009 sickened people in over 200 nations and territories and killed more than 18,000, according to official figures from the World Health Organization. UW–Madison veterinary medicine professor emeritus Christopher Olsen said the actual number of deaths was likely far higher. The pandemic was caused by a strain of influenza known as H1N1.
- Olsen's lab discovered a strain of H3N2 influenza in pigs in 1998. Pigs had previously only been known to be infected with the H1N1 strain. Most H3N2s are a type of influenza virus known as a triple reassortant, meaning it includes genetic material from bird, swine, and human influenzas. These viruses result when multiple types of influenza viruses infect a single host and share genetic material. They have led to multiple pandemics, and a triple reassortant virus is thought to have been a precursor of the 2009 H1N1 pandemic.
- UW–Madison veterinary medicine professor Yoshihiro Kawaoka studies how wild viruses move between and among different species, including a dangerous strain of H7N9 bird influenza that appeared in China in 2016.



An electron micrograph shows 1918 H1N1 influenza virus particles near a cell.



A digitally colored transmission electron microscopic image shows H1N1 influenza virus particles.

at UW–Madison, compiled a list of such transmissions with collaborators at the University of Iowa.

Olsen said that he and his colleagues suspected that pig-to-human flu transmissions were actually much more common, so they conducted a series of studies to build on Easterday’s work and more systematically document transmissions among farm workers in Wisconsin and elsewhere. Their results showed conclusively for the first time that swine flu regularly moves from pigs to humans who have close contact with them. Still, these types of swine viruses were rarely seen to move from human to human, Olsen said, though that changed dramatically in 2009.

A virulent strain of swine flu led to a 2009 pandemic that sickened people all over the world. The strain included genetic lineages of four different influenza viruses, including a classical swine flu, a human flu, a bird flu, and a unique Eurasian swine virus that was discovered to be a bird flu that had evolved in pigs.

Olsen was able to better understand interspecies jumps using a technique developed by Kawaoka,

a professor of pathobiological sciences at the SVM. Along with a UW colleague, virologist **Gabriele Neumann**, Kawaoka developed a lab technique in 1999 known as reverse genetics. The technique allows researchers to create targeted mutations in influenza viruses to understand how it responds to the mutations. Influenza has a unique genetic encoding system that gives rise to a high number of mutations and allows it to evolve rapidly.

Kawaoka’s reverse genetics system “has absolutely revolutionized influenza research,” Olsen said in the lecture, including the ability to better track when and how influenza strains have jumped species barriers, an uncommon occurrence.

Kawaoka explained that he has not only used the technique to identify mutations in individual strains that would make it much easier for them to jump species, but to also become much more infectious. Some of this research has been controversial, including when Kawaoka identified four mutations that would make a particularly

In Memoriam

The UW School of Veterinary Medicine regrets to announce the loss of two alumni.

Lloyd Lauerman MS’60, PhD’68 passed away in February. As a doctor of veterinary medicine, he was first employed by Biological Specialties in Middleton, Wisconsin. He then taught microbiology and conducted research at the University of Nairobi in Kenya. After returning to the United States, he worked at Colorado State University, the Alabama State Diagnostic Laboratory, Washington State University’s Puyallup Research and Extension Center, and the Brucellosis Laboratory in Olympia.

Guy Roger Spencer MS’44, a retired professor of veterinary pathology at Washington State University, died in April. Spencer was a volunteer member of the U.S. Naval Reserve and served on active duty during WWII. He considered his best professional contributions to be his research on the control of mastitis in cows and the development of a training program for veterinary pathologists at Washington State.

deadly strain of bird flu much more infectious in mammals.

Online: See video of the full presentation, 100 Years of Influenza Research at the UW, at go.wisc.edu/fluvideo.

By Will Cushman, WisContext. This article was originally published on WisContext, produced in a partnership between Wisconsin Public Radio and Wisconsin Public Television. It has been edited for length.



From left to right, Comparative Genetics Research Laboratory members Emily Binversie, Peter Muir, Susannah Sample, Lauren Baker, and Jordan Gruel. Not pictured: Sabrina Brounts.

After Winning Online Vote, Researchers to Assemble German Shepherd Genome

A lab group within the UW School of Veterinary Medicine (SVM) that includes three SVM alumni tapped their resourcefulness and humor to get a grant in an unusual way: by winning an online vote among six finalists.

The Comparative Genetics Research Laboratory will use the award, valued at up to \$50,000, to assemble the genome of a German shepherd for the first time and to research diseases affecting the breed.

The project received 24 percent of almost 13,000 votes placed in a grant competition hosted by Pacific Biosciences. To draw attention to its project, the lab created a light-hearted video that features Maya, a German shepherd mix from the UW–Madison Police Department, her partner, Sgt. Nic Banuelos, and other animal guests.

Researchers in the Comparative Genetics lab study genetic diseases that affect dogs, which can serve as models for similar diseases in humans. They also study genomic variation between dog breeds to better understand

breed-specific traits and diseases.

This genome will allow the group to expand its research into diseases that affect German shepherds, starting with fibrotic myopathy. It will also contribute to further understanding of structural variation between the genomes of different dog breeds.

Fibrotic myopathy is a crippling disease that causes muscle contracture and pain, leading to hind limb lameness and an abnormal gait. In dogs, the disease chiefly affects German shepherds and there are no successful treatment options. The disease also affects horses and is similar to congenital torticollis, a condition of muscle contraction that affects between 0.3 to 0.5 percent of human infants.

“This sequencing will be an important first step to discovering the underlying genetic basis of fibrotic myopathy,” says **Susannah Sample MS’07, DVM’09, PhD’11**, an assistant professor in the Department of Surgical Sciences at the SVM.

Sample and **Peter Muir**, the

Melita Grunow Family Professor of Companion Animal Health, serve as principal investigators in the Comparative Genetics lab. Other lab members include **Lauren Baker MS’14,**

DVM’16 and **Emily Binversie MS’16, DVM’18**, who are both undertaking PhD training in the SVM’s Comparative Biomedical Sciences graduate program, and technician **Jordan Gruel.**

Sample says the assembly of a reference genome for the German shepherd will be a major contribution to canine genetic research and to veterinary medicine at large.

“We’re so grateful for the enthusiastic response to our research and we look forward to learning more about this beloved breed,” she says.

To view the lab’s video: go.wisc.edu/genomegrant



Alumnus' Clinic Named 2018 AAHA-Accredited Practice of the Year

Country Hills Pet Hospital of Eden, Wisconsin, owned by **Mark Thompson DVM'96**, was awarded the 2018 American Animal Hospital Association (AAHA) Accredited Practice of the Year. This highly competitive award recognizes the outstanding achievements of AAHA-accredited veterinary practice teams and celebrates ongoing advancements in veterinary medicine.



Thompson said his staff is what makes him most proud of his practice. He joined Country Hills in 1997 as an associate veterinarian and the only small animal doctor at the mixed practice. Thompson became a co-owner in 2001, eventually becoming sole owner in 2008 and establishing the hospital as a small animal practice only. **Stephanie Winske DVM'17** joined in 2017.

QUOTED

"As a son of a veterinarian, and as the spouse of one, this profession has provided sustenance and fulfillment for me all my life. I have been working for a veterinarian or as a veterinarian for over 51 years, and remarkably it still provides those things for me.

I think most veterinarians could compile the same lists of gratitudes: For parents and friends that supported us, for professors and mentors that taught us, for patients and clients that encouraged us, and for a vocation and profession that fulfills us.

I am grateful for the opportunity to be a veterinarian."

—Rodney Kuenzi DVM'87, Kuenzi Family Pet Hospital

To read more comments from graduates about why they are thankful for a career in veterinary medicine: go.wisc.edu/SVMgratitude

SAVE THE DATE SATURDAY, SEPTEMBER 28

SVM Tailgate and Continuing Education Event Veterinary Medicine Building

Join fellow alumni and friends for a continuing education seminar, tailgate, and the Wisconsin vs. Northwestern football game (time TBA).

Questions?

Please contact Kristi Thorson at kristi.thorson@wisc.edu or 608-265-9692.

A Message to DVM Alumni

A Great Time to Be a Veterinarian



We recently graduated our 33rd class of students. As I pondered what is ahead for these 80 new veterinarians, I couldn't help but think about a comment one of you recently shared with me: "It is a great time to be a veterinarian!"

Our graduates are in demand and salaries are going up. The DVM degree opens doors for so many careers — companion animal health, food animal production medicine, mixed animal practice, public health, food safety, academia, industry, zoological medicine, and so much more. I have seen many of you enjoy successful careers, whether you choose to own your practice, stay out of the "business" side of things, or find ways to specialize and focus on what you enjoy most. I see some of you ready for a change and your degree opening doors to new careers. I hear some of you talk about the changing world, and how that is going to create new opportunities for the profession.

However, there are challenges. And so I am pleased to see national attention to issues such as indebtedness and mental health. We're focused on these as well. The American Veterinary Medical Association recently analyzed the mean nominal debt of all U.S. veterinary graduates and UW-Madison has the lowest annual increase in educational debt for in-state graduates since 2006 (0.13 percent). We've also made investments in mental health support by creating an additional counseling office (and counselor) and meditation room as part of our Renk Learning Center, in addition to the mental health first aid and other trainings and services we provide. More needs to be done in both of these areas, but I am encouraged that we're not staying silent.

As I think about our graduates and about each of you, I hope you are all finding that it is a great time to be a veterinarian. I'd love to hear your thoughts! I can be reached at 608-265-9692 or kristi.thorson@wisc.edu.

Kristi V. Thorson

Kristi V. Thorson

Associate Dean for Advancement and Administration

Schuler Receives Hilldale Award



Linda Schuler, a professor of comparative biosciences in the UW School of Veterinary Medicine (SVM), is among the 2019 winners

of a Hilldale Award at UW–Madison.

The Secretary of the Faculty annually recognizes four professors with Hilldale Awards for distinguished contributions to research, teaching, and service. The winners are awarded \$7,500.

Schuler was a member of the first class of professors hired to inaugurate the SVM in 1983. Her research defined the genetic details of the hormonal control of milk production in dairy cows. That work led Schuler

to discover that the milk-stimulating hormone prolactin can induce breast cancer, distinguishing her as a researcher eager to pursue leads toward the next problem.

Schuler has built up the school she helped found, serving on virtually all committees for upwards of 30 years. She has particularly focused on developing the careers and talents of new faculty, serving on the Dean’s Task Force for Mentoring since its inception and now as the associate chair for faculty development within her department. Her dedication to mentoring women was recognized with the Doris Slesinger Award for Mentoring in 2014.

As a founding member of her department, Schuler helped develop the veterinary physiology course that she has now overseen for more than three decades. And she has mentored more than 150 graduate students across seven graduate programs on campus.

“Simply put, Schuler is an exceptional scientist and mentor,” writes department chair **Ted Golos** in his nominating letter. “She continues to be an inspiration to the students and faculty she has mentored over the last 35 years, likewise instilling in them the importance of mentoring and promoting a supportive environment where everyone can succeed.”

Eric Hamilton

Excellence in Teaching



Kim Lord Plummer, senior lecturer in the Department of Comparative Biosciences, received the 2019 Chancellor’s Hilldale

Award for Excellence in Teaching, a prestigious honor from UW–Madison for members of the academic staff.

Lord Plummer is a cornerstone of the first year of study at the School of Veterinary Medicine. Students couldn’t

be in better hands, her colleagues say. Plummer directs two courses, Anatomy of the Large Domestic Animals and Veterinary Neuroanatomy-Neurophysiology, and plays a major role in a third, Fundamental Principles of Veterinary Anatomy.

In both of her primary courses, she’s taken an active role in updating, improving, and developing new teaching materials to reflect the evolving needs of students. Her talent lies in

bringing the clinic into the classroom. She often highlights campus research and case studies to make complicated material relevant.

Among her teaching tools: engaging storytelling, self-directed learning modules, and small group problem-solving activities. And she does it all with wit and warmth. Students consistently rate her classes “excellent” 97 percent or more of the time — among the highest marks in the department.

Other Notable Honors

Kyle Karlen DVMx’20 was honored at the Western Veterinary Conference in February as a recipient of the Dr. Jack Walther Leadership Award, which recognizes third-year veterinary students who portray leadership and promote lifelong service to the profession.

Mark D. Markel, dean of the UW School of Veterinary Medicine, was named president-elect of the Association of American Veterinary Medical Colleges (AAVMC) at the 2019 AAVMC Annual Conference in March.

Karen Young, clinical professor in the Department of Pathobiological Sciences, earned the Slesinger Award for Excellence in Mentoring, given annually to a member of the UW–Madison academic community who has demonstrated exceptional mentoring to women faculty.

Mostafa Zamanian, assistant professor of pathobiological sciences, earned a UW–Madison Postdoc Mentoring Award for his outstanding work in mentoring the next generation of scientists and researchers on campus.

Student Leaders Earn VOICE National Chapter of the Year

The UW School of Veterinary Medicine chapter of Veterinarians as One Inclusive Community for Empowerment (VOICE) received the VOICE National Chapter of the Year Award for 2018-19.

VOICE is a national student-run organization that seeks to increase awareness, respect, and sensitivity to differences among all individuals and communities in the field of veterinary medicine. The organization aims to celebrate diversity within the profession, encourage campus environments that embrace diversity and promote the success of all students, and emphasize cross-cultural awareness in veterinary medicine. In addition, VOICE chapters provide leadership and mentorship to youth, particularly those from underrepresented backgrounds, who are interested in careers as veterinarians.

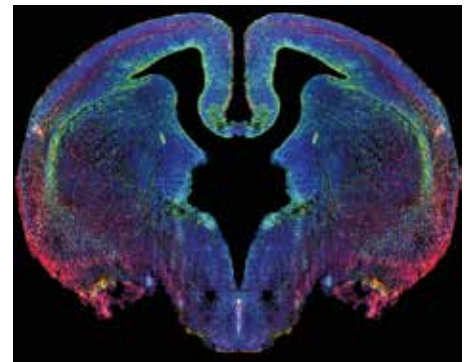
The Chapter of the Year award honors a VOICE chapter that has organized or sponsored many successful events, exceeded programming requirements, and continuously supported the development of a positive and welcoming environment, as well as an understanding of diversity and

inclusivity, within their local and academic communities.

“It’s always a great feeling to know that our work and efforts as student leaders are recognized,” says chapter president **Kyle Granger DVMx’20**. “This award showcases the importance and the impact of everything that we have done and will do in the future. Our mission to create a more inclusive and welcoming environment for students has been, and will always be, our main priority.”

Throughout the 2018-19 academic year, the chapter led initiatives aimed at increasing awareness of autism, domestic violence, and other subjects; hosted guest lectures on bias, diversity in communication, and the female experience within veterinary medicine; presented workshops related to self-defense, suicide prevention, and more; and participated in the Latino Youth Summit, Indigenous Health and Wellness Day, and other events focused on topics such as family empowerment and career exploration.

The chapter was previously honored with VOICE’s 2017-18 Programming Excellence Award.



Winning Image

Daniel Radecki, a postdoctoral researcher in the Department of Comparative Biosciences at the School of Veterinary Medicine (SVM), had a winning entry in UW–Madison’s 2019 Cool Science Image Contest with a microscope image (above) of neural stem cells in the developing brain of a 16-day-old mouse embryo. Ten images and two videos by UW–Madison students, faculty, and staff were named winners from amongst 95 entries.

Radecki is a trainee in the lab of **Jayshree Samanta**, assistant professor of neuroscience at the SVM. The lab focuses on how neural stem cells generate myelin — a vital insulating sheath composed of lipids and proteins around nerve fibers — in the healthy and diseased brain. Their research may lead to the discovery of therapeutic targets for the treatment of multiple sclerosis and other diseases that degrade myelin and lead to degeneration of the nervous system.

The lab has identified a protein, GPNMB, in neural stem cells that could regulate the cells’ differentiation during brain development and their ability to regenerate myelin-producing oligodendrocytes during diseases. The protein has not been previously characterized in developing or adult neural stem cells; Radecki’s image is an example of GPNMB expression (stained green) in neural stem cells lining the black, fluid-filled ventricles during brain development.



Officers of the UW SVM chapter of Veterinarians as One Inclusive Community for Empowerment (VOICE) accept the 2018-19 VOICE National Chapter of the Year Award. From left to right: Kameron Montana DVMx’20, Makenzi Travis-Balac DVMx’20, Kyle Granger DVMx’20, Priscilla Marroquin DVMx’21 and Jessica Carag DVMx’20. Not pictured: Melissa Sheth DVMx’21 and Clara Cole DVMx’21.



MEGHAN LEPISTO

Room to Breathe

On an otherwise ordinary fall morning, Michael Kern stepped out of the shower to find Foxy, the family's 11-year-old Pomeranian, lying on the bathroom floor, unable to stand.

Kern and his wife, **Judy Geier**, rushed Foxy to their local veterinarian in Loves Park, Illinois, and then on to UW Veterinary Care's Emergency Service. In Madison, X-rays and an MRI revealed that a herniated disc between the vertebrae in Foxy's neck was compressing her spinal cord, causing temporary paralysis.

Herniated, or ruptured, discs are common in dogs, most often a result of degeneration (aging). Surgery can alleviate the condition, but Foxy faced another major concern: tracheal collapse, in which the cartilage within the trachea weakens and breaks down, restricting the airway.

Dogs with tracheal collapse often still manage day-to-day life well, but the narrowed airway can impair an animal's ability to recover from anesthesia, explains **Jonathan Bach**, director of emergency and critical care services. "I was pretty

worried when I saw in the X-rays how narrow her trachea was," Bach recalls. "We preemptively warned Michael and Judy that Foxy might need a tracheal stent to be able to survive and get through all this. And that's exactly what happened."

In the hours following surgery to repair Foxy's spinal cord injury, she began having increased trouble breathing and had to be placed on a ventilator. After consulting with Kern and Geier, Bach implanted a stent — a small, self-expanding tube, woven with flexible metal wire — into Foxy's trachea to restore the normal diameter of the space.

Foxy's condition slowly improved over eight days in the Critical Care unit, with coordinated care from the Neurology Service.

"She had major spinal cord compression and it takes time — sometimes a few days, sometimes several weeks — for animals that are decompressed with surgery to be able to regain neurologic function," Bach explains.

Foxy's family, which includes another Pomeranian, **Bear**, visited multiple times each day during her hospitalization. "We just wanted to



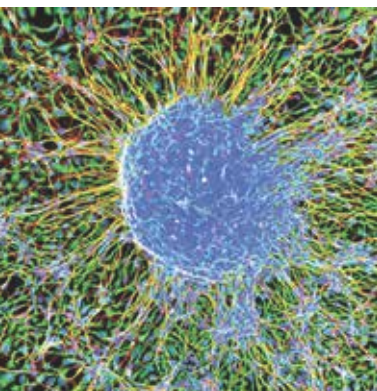
An X-ray shows the narrow width of Foxy's trachea (marked with a red arrow at left) before a stent was implanted. The trachea should be as wide as the capital I traced in red at the center of the image.

make sure she saw us, to give her a reason to fight," says Kern.

Foxy has done well in the months following and is back to enjoying walks, playtime, and primping.

"She never would have made it if it wasn't for you," Geier told Bach at a recheck appointment in October, noting her and Kern's gratitude to the entire UW Veterinary Care team. "Everybody here, from beginning to end — I've never seen anything like this place."

Meghan Lepisto



WILL YOU BE A HERO?

Every day, the UW School of Veterinary Medicine makes lives better by training veterinarians, conducting research that benefits pets and people, caring for animals in our teaching hospital and providing service throughout Wisconsin and beyond.

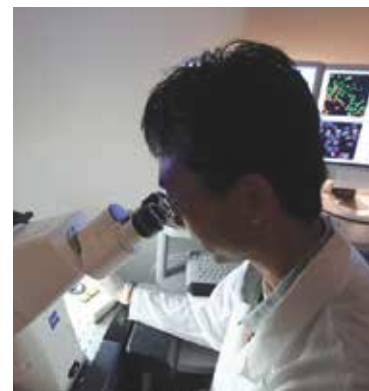
To continue saving lives and serving those in need, we must expand and update our facilities.

Join us as a hero today, and together, let's build the school's future.

There are several ways to get involved

— whether it's **giving back**, **reaching out**, or simply **staying connected** online.

AnimalsNeedHeroesToo.com/Be-A-Hero



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Hoo's this?

A great horned owl treated at Dane County Humane Society's Wildlife Center in partnership with UW Veterinary Care. Since 2014, the School of Veterinary Medicine's Special Species Service has provided medical care for admitted wildlife at the center. This large bird was hit by a car in February, experiencing head trauma and partial retinal detachment. After the owl's condition stabilized, veterinarians determined that the bird still had sufficient vision to be a suitable candidate for rehabilitation.

Fly over to page 14 to learn more about this collaboration.

