



## School Update and Impacts January 2018

### NEW LEADERS



**Dr. Rebecca Bellone** was recently appointed director for the Veterinary Genetics Laboratory (VGL). She obtained her PhD from the University of Kentucky in Equine Genetics. She was on faculty at the University of Tampa in Florida before coming to Davis, where she was the recipient of several outstanding scholar awards. Her research interests are in equine genetics and genomics specifically related to pigmentation biology and associated disorders, including inherited ocular disorders of horses. As director, she will provide leadership for the center's education, research, and testing services, set a research agenda that promotes discovery and scholarship of genetic based disease of animals, and foster collaborations in animal genetics and inherited diseases.

**Dr. Carrie Finno** was recently appointed director for the Center for Equine Health (CEH). Finno has served as interim director since December 2016. She completed her DVM and an internship in Large Animal Medicine and Surgery at the University of Minnesota and a residency in Large Animal Internal Medicine at UC Davis. Board certified in the American College of Veterinary Internal Medicine, she completed a PhD in Comparative Pathology at UC Davis, returned to the University of Minnesota for post-doctoral training in comparative genetics and joined our faculty in 2014. Finno's scholarship interests are in the pathophysiology and genetics of axonopathies, specifically neuroaxonal dystrophy in horses. As director, she will provide leadership for the center's teaching, research and service programs and act as a liaison between the school and the equine industry in California and nationally.



**Dr. Mary Beth Whitcomb** has been appointed as interim director of the Large Animal Clinic effective March 1, 2018. Whitcomb has served as deputy director of the Large Animal Clinic since July 2017. After obtaining her DVM at UC Davis, she completed an equine internship at Las Colinas Veterinary Clinic in Irving, TX and a Fellowship in Large Animal Ultrasound and Cardiology at the University of Pennsylvania's New Bolton Center. Whitcomb, a professor of Clinical Large Animal Ultrasound, completed an MBA at UC Davis and has served as section head for Large Animal Ultrasound for 14 years. As interim director, she will oversee the educational, patient care and client/referring veterinarian service programs of the Large Animal Clinic.

### VETERINARY MEDICAL CENTER – LEADING THE WAY

The school recently announced plans to raise \$115 million in philanthropic support to update and improve three critical areas of the veterinary hospital: the Livestock and Field Service Center, the Equine Performance Center and the All-Species Imaging Center. This campaign, called "Leading the Way," marks the first phase in a long-term plan to transform the Veterinary Medical Teaching Hospital into the UC Davis Veterinary Medical Center.

The veterinary teaching hospital is overdue for an update. Opened in 1970 to serve 3,000 patients per year, the hospital now sees more than 50,000 annually, causing the hospital to face significant constraints in space, layout and capacity, and impacting the timely care provided to clients.



More than half of the campaign goal has already been raised -- \$67 million—prior to the recent announcement. Donors include grateful clients, alumni, faculty, staff and friends of the school and UC Davis. The Class of 1992 had the foresight to support this project in 2012 as part of their 20-year reunion class gift. Alumnus and referring veterinarian Dr. Jon Klingborg spoke at the announcement about the importance of the project. “I’m so happy that my class is on the front edge of this fundraising initiative,” said Dr. Klingborg. “It is our vision that others will join us to help build the new Veterinary Medical Center.”

### SCHOOL STEPS UP DURING WILDFIRES

For nearly a month this fall, the faculty, staff and students helped rescue and save animals injured and/or displaced by the California wildfires that ravaged much of the Napa Valley area. Whether it was performing search and rescue missions in the fire zones, aiding at evacuation centers, or caring for hospitalized animals, the school played a major role in helping the animals of Northern California.



Over the course of the next two weeks, 29 veterinarians and students from the Equine and Livestock Herd Health field services would help care for scores of evacuated animals, in conjunction with many local veterinarians and members of the California Veterinary Medical Reserve Corps. Members of the school’s Veterinary Emergency Response Team and the Center for Equine Health continued to performed search and rescue missions throughout Napa, Sonoma and Solano Counties. On campus, the veterinary hospital received 77 animals – one dog, one goose, one chicken, two llamas, 14 horses, 25 cats, and [33 koi fish](#).

### POISONED PETS, PREMIE FOALS, DOGS WITH SPINA BIFIDA: UC DAVIS' VETS SEE THEM ALL

*Excerpts from LA Times article:*

You never know what will come through the doors of the UC Davis Veterinary Medical Teaching Hospital, a showcase of pioneering therapies, advanced technologies and elite researchers. The top-ranked veterinary program in the world offers 34 specialties including cardiology, oncology and neurology.



More than 50,000 animals a year — as small as hamsters, as big as buffalo — are cared for by its 120 faculty veterinarians and nearly 600 interns, residents, fellows, technicians and students. Its specialists assist endangered gorillas in Africa, penguins in Brazil — even residents, including tarantulas and giraffes, of the nearby Sacramento Zoo.

The hospital recently launched a campaign to double its size in 10 years, which would make it one of the world's largest veterinary hospitals. Today we saw a dog with spina bifida, a lame horse being diagnosed with a PET scanner, a dog preparing for jawbone surgery, a dog undergoing a therapeutic plasma exchange and a premature foal named Danika.



Danika, a Friesian foal, arrived four weeks prematurely, so early that her bones had not fully formed. The hospital's Neonatal Intensive Care Unit team is used to treating serious problems, including ruptured bladders and sepsis. Volunteers with the UC Davis Foal Team stay with preemies around the clock. Every two hours, the volunteers let Danika up for assisted standing. Every four hours, they helped her bear weight by straddling a bouncy exercise ball. The foal also was given enzymes to treat a gut problem. After five weeks in the NICU, Danika was declared good to go. Read the full story at: [www.latimes.com/](http://www.latimes.com/)

## 2018 ALUMNI ACHIEVEMENT AWARD RECIPIENTS

Each year the school honors members of its alumni with an Alumni Achievement Award. This award is the highest honor bestowed by the school. Honorees may be graduates of the school's DVM, MPVM, and graduate academic (MS, PhD) programs, or individuals who have completed internship or residency programs. Award recipients will be recognized after the school's State of the School Address on May 25<sup>th</sup> and formal award presentations will be made during school's Commencement ceremony (May 26, 2018). This year's 2018 Alumni Achievement Award Recipients are:



- **Stanley Creighton**, DVM, DACVIM, President-Creighton Consulting and Founder Emeritus, NVA. Dr. Creighton receives this award in recognition of his vision, effort, and leadership as the founder of National Veterinary Associates.
- **Howard Hill**, DVM, MS, PhD. Retired. Dr. Hill receives this award in recognition of his contributions to the health and welfare of swine and to the nation's pork industry.
- **Philip Kass**, DVM, MPVM, MS, PhD, DACVPM, Vice Provost of Academic Affairs, UC Davis. Dr. Kass receives this award in recognition of outstanding achievements in epidemiological research, extraordinary collegiate support, and distinguished leadership to enhance veterinary medical faculty diversity and equity.
- **Jon Klingborg**, DVM, Owner-Valley Animal Hospital in Merced, CA. Dr. Klingborg receives this award in recognition of his extreme dedication, leadership and tireless commitment to the health and welfare of the veterinary profession and animal patients.
- **Pamela Ruegg**, DVM, MPVM, DACVPM, DABVP, Professor and Extension Milk Quality Specialist, Department of Dairy Science, University of Wisconsin-Madison. Dr. Ruegg receives this award in recognition of her extraordinary service to dairy farmers, dairy cattle, and consumers of dairy products around the world.

## MARIJUANA FARMS EXPOSE SPOTTED OWLS TO RAT POISON

Wildlife species are being exposed to high levels of rat poison in northwest California, with illegal marijuana farms the most likely source point, according to [a study](#), released Jan. 11 in the journal *Avian Conservation and Ecology*. It showed that seven of the 10 northern spotted owls collected tested positive for rat poison, while 40 percent of 84 barred owls collected also tested positive for the poison. This is the first published account of anticoagulant rodenticide in northern spotted owls, which are listed as a threatened species under federal and state Endangered Species acts. The study area encompasses Humboldt, Mendocino and Del Norte counties. It



supports previous accounts that rat poison is contaminating the food web in this region, as the primary food source for owls — rodents — is being contaminated.

“Spotted owls are inclined to feed along forest edges. Because grow sites break apart these forest landscapes, they are likely source points for exposure,” said lead author Mourad Gabriel, a research faculty member with the [UC Davis Karen C. Drayer Wildlife Health Center](#) within the school’s One Health Institute.



The study authors note that an estimated 4,500 – 15,000 private unpermitted cultivation sites are in Humboldt County alone. “We’re deeply concerned that there aren’t sufficient conservation protective measures in place,” Gabriel said. “If no one is investigating the level at which private marijuana cultivators are placing chemicals out there, the fragmented forest landscapes created by these sites can serve as source points of exposure for owls and other wildlife.”

### **SCHOOL LAUNCHES STRATEGIC PLANNING INITIATIVE FOR 2018-2023**

Last October the school’s leadership team officially launched the 2018-23 strategic planning initiative to guide the school’s next five years. This initiative builds upon the very successful 2012-17 strategic plan and subsequent implementation effort. The [current plan](#) focused and aligned the school’s program development and resource allocations with the carefully developed strategic vision and set of clear goals. The new initiative is a refresh of the original plan to maintain major mission goals, consolidate infrastructure strategies and set the course for the next five years.

The new initiative began with a one-day facilitated workshop for 60 faculty and key staff participants which included sessions on:

- Past accomplishments
- Future events and trends impacting the school or profession
- SWOT analysis (strengths, weaknesses, opportunities and threats)
- Discussion of on-going major goals and potential new goals
- Identification of external stakeholders and partners to involve in the upcoming vision session
- Appointment of goal teams and assignments



Planning will continue around five goals which will emphasize outstanding education, research, clinical care and training, advancing animal well-being around the globe, and promoting faculty and staff recruitment, leadership and work-life balance. The next step is a vision conference where participants and stakeholders will review a set of goal focused concept papers, share input and discuss ideas as part of creating future strategies for achieving the school’s refreshed goals. The planning initiative will continue through the spring with a May/June goal for finalizing the 2018-23 Strategic Plan.

### **UC DAVIS VETERINARIAN SEES SOME OF THE WORLD’S MOST EXOTIC PETS**

*Excerpts from recent LA Times article:*

UC Davis veterinarian Dr. Jenessa Gjeltema opened her 7:30 a.m. staff meeting with a rundown of the day’s patients: An armadillo, a tarantula, a Western pond turtle, a thick-billed parrot, a flamingo, a baby bongo and a Wolf’s guenon monkey.

Gjeltema a specialist in zoological medicine, cares for the Sacramento Zoo’s animals. There are about 575 of them, representing nearly 130 species — from tiny whiptail scorpions to 1,500-pound giraffes. A key part of

Gjeltema's care is prevention — so she examines all of the animals regularly. Sometimes, zoo vets face problems that no one has yet studied. Or they have to improvise tools to fix them. How do you find a medical instrument, for instance, small enough to do surgery on a hummingbird?

"You have to really be creative and think outside the box," Gjeltema said. "You've got to come up with your own tools and your own path."

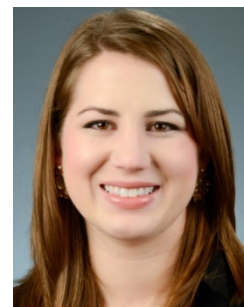
Gjeltema, a Diplomate of the American College of Zoological Medicine, also teaches at the school, training veterinary students in clinical practice. On this day Gjeltema was assisted by veterinary students Weina Dai and Audrey Buatois in treating Suzie, a baby thick-billed parrot. The brightly colored parrot species is endangered. It's also the only surviving species native to North America. When Suzie appeared to have contracted a fungal pneumonia, Gjeltema and her team had to decide quickly whether to separate the nestling from her family, which could complicate her return. They chose to take the risk and move her to an oxygen incubator. On this visit, Gjeltema fed Suzie formula through a tube and administered antibiotics, antifungal medicine and inhalants to open her airways. Suzie improved enough to move to a regular cage. View full story at: [www.latimes.com/](http://www.latimes.com/)



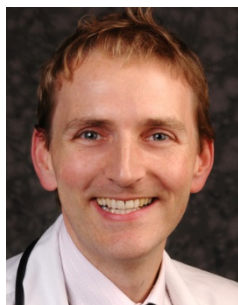
### **MENTORING FUTURE COLLEAGUES - SAVMA Faculty Advisers Engage Profession's Next Generation of Leaders**

Volunteer leadership is critical to the success of Student AVMA chapters, and each of the veterinary school chapters has at least two AVMA members volunteering as faculty advisers. These faculty members provide support and guidance to the chapter officers and, collectively, to more than 16,000 members of student chapters. Faculty advisers fill a variety of roles within their chapters, while also attending chapter board meetings and events throughout the year.

At UC Davis these advisors act as mentors and sounding boards for veterinary students. Paige Livingston, president of the UC Davis chapter, said, "Our faculty advisers work closely with our officers to provide input on projects and fundraising initiatives, promote faculty-student mentorship, and offer invaluable perspective as a veterinary professional and faculty member. Our faculty advisers bring innovative suggestions to our chapter and always make themselves available for meeting with our officers to discuss projects or professional career goals."



At the national level, AVMA members on faculty at schools and colleges of veterinary medicine have volunteered as faculty advisers for the Student AVMA chapters for as long as many chapters have existed. When the national Student AVMA formed in 1969, the AVMA saw a need to bring the volunteers together and started a Faculty Advisers Conference which is now held annually and includes student officers.



On the UC-Davis campus, faculty adviser Dr. Karl Jandrey was president of his student chapter during veterinary school, so he said it made sense to serve as an adviser to student officers "since I walked in their shoes." Some of the best times with his student officers are small gatherings at his house for a picnic, brunch, drinks, or dinner. He said, "We enjoy the personal connection, relaxed honesty, and realness of being part of a professional family." For faculty advisers, he said, "to pay it forward and set the tone for a lifetime of hard but rewarding work is a real gift that we are lucky to provide to others."

Livingston related how appreciative the students are of these experiences. She said, "These dinners give the officers an opportunity to spend time together off campus and get to know Dr. Jandrey and his cats better. We very much appreciate Dr. Jandrey's willingness to welcome the officers into his home."

Listening to bright and energetic minds that are equally committed to their education and to supporting student life and personal and professional growth is the best part of being an adviser, says Jandrey.

### **LIKE HUMANS, OUR PETS ALSO SUFFER FROM SMOKE EXPOSURE AND INHALATION**

Burning and watery eyes, sandpaper-dry throat, tight chest and a wheezing cough: even if you haven't been in the midst of a wildfire, chances are you've been close enough to feel the effects that may last for several days, depending on the size of the fire. UC Davis Professor Kent Pinkerton has spent the past 30 years studying air pollution and how it affects respiratory, cardiovascular and neurologic health of humans and animals. He has conducted a number of studies in the San Joaquin Valley to better understand how airborne particles in agricultural areas contribute to lung diseases, such as asthma and chronic obstructive pulmonary disease.

"Most of the studies we've conducted over the years look at the effects of environmental tobacco smoke and combustion particles on lung growth and development," says Pinkerton, who serves as director of the [Center for Health and the Environment](#), as well as director of the [Western Center for Agricultural Health and Safety](#).

There is a greater concentration of particles in wildfire smoke which vary in size, with different constituents in those particles which may create a more toxic combination than researchers find in other sources of air pollution. Because the lung structure in cats, dogs and horses is similar to those in people, they suffer many of the same physiological impacts of smoke exposure and inhalation. As with humans, some animals are at greater risk, including those with cardiovascular or respiratory disease. With an increase in the number and intensity of these fires over the past couple of years, the need for better understanding the compounds found in wildfire smoke continues to be urgent for human and animal health.



He points to the increasing amount of chemicals in the air. For example, the amount of aerial fire retardant used in California increased from approximately 3 million gallons in 2012 to about 7 million in 2015. Those chemicals are necessary to suppress wildfire and keep it from reaching heavily populated urban areas. During the same period, pesticide use in the state increased from about 186 million pounds to 194 million pounds, adding to the problem.

"We see the strong emerging need for new research in this area to better determine the health risks of wildfire smoke to humans and animals," Pinkerton says. "The past few years have shown the prevalence of wildfires isn't going away any time soon."

### **ENHANCED NATURAL KILLER CELLS ATTACK SOLID TUMORS**

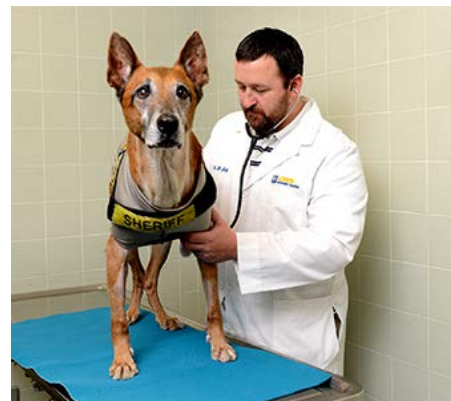
Human and veterinary researchers at UC Davis and other institutions have shown that enhanced natural killer (NK) immune cells, combined with radiation therapy, can be effective against spontaneous osteosarcoma (bone cancer) in dogs. The research showed these NK cells homed in on cancer and reduced metastasis in the treated dogs, offering a potential immunotherapy against solid tumors. The study was published in the [Journal for Immunotherapy of Cancer](#).

NK cells used therapeutically to treat cancer patients have only had modest results except in blood cancers. In this study, the results showed that the NK cells can be effective against solid tumors. While genetically

engineered T cells have garnered much attention, they aren't the only immunotherapy available. NK cells are highly mobile early responders that attack tumors and cells overtaken by viruses. Because their homing mechanisms are less specific than T cells, NKs could potentially hit a wider range of targets. They may also be effective against cancer stem cells: tumor-initiating cells that resist most treatments and can generate recurrent tumors.

In the study, each canine patient's NK cells were extracted, expanded and activated. Radiotherapy was administered to enhance the NKs' ability to destroy tumors. The cells were tested against dog sarcoma cell lines and xenografts and injected directly into the dogs' bone tumors.

The enhanced NK cells were effective in all three cancer models: killing sarcoma cells *in vitro*, preventing xenografts from growing and reducing metastasis in the patients. Ten dogs were treated in the study and five showed no signs of metastasis after six months. By comparison, canine osteosarcoma patients that only receive radiation have an 85 percent metastasis rate.



Investigators said the research advances cancer therapies for both canines and humans. In October, UC Davis received a \$2.5 million National Cancer Institute Moonshot grant to study immunotherapy in dogs.

#### **ADMISSIONS – CLASS OF 2022**

This year 1,046 applications for admission to the DVM professional curriculum were received and 180 applicants were interviewed based upon their GPA, highest quantitative GRE score and three electronic letters of recommendation (ELOR). An additional 60 applicants were offered an interview based upon a holistic review of their application including personal statement, veterinary and other experiences, VMCAS essay questions, ELORs, and education. Interviews were conducted via the Multiple Mini Interview (MMI) process.



The MMI is a series of short, structured interviews used to assess personal traits/qualities. Each mini interview provides a candidate with a few minutes to read a question/scenario and mentally prepare before entering the interview room. Upon entering, the candidate has several minutes of dialogue with one interviewer. At the conclusion of the interview, the interviewer has a few minutes to evaluate while the candidate moves to the next scenario. This pattern is repeated through a circuit of 10 stations. The MMI was derived from the well-known OSCE (objective structured clinical examination) used by many medical programs to assess a student's application of clinical skills and knowledge. However, the MMI does not test knowledge of veterinary medicine but rather personal attributes such as communication skills and ability to work as part of a team, ethical and critical decision-making abilities, and behaviors important to being a veterinarian such as empathy, honesty and reliability.

Offers of admission for the Class of 2022 were extended to 150 applicants who must accept or decline the admissions offer by April 16, 2018 (the national deadline).



## AS EMERGING DISEASES SPREAD FROM WILDLIFE TO HUMANS, CAN WE PREDICT THE NEXT BIG PANDEMIC?



As humans increasingly encroach on wildlife territory and increasingly travel long distances in short times, the threat of zoonotic pandemics is growing. As human interaction with wild animals grows, so does the risk that disease organisms will leap from them to us. For those that do harm humans, the first step is to come in contact with us. And that's becoming more and more likely as we invade pristine forests in search of food, building materials, space for commercial developments or land upon which we can create new grassland for our livestock — or catch critters for bushmeat, pets or the “wildlife selfie” trade.

Once a zoonotic virus infects a human, different things can happen. If it is extremely virulent, it will rapidly kill its human host — which from a strictly epidemiological perspective can be seen as beneficial, because there may be fewer chances that the virus will spread to others. But if the virus takes some time before it makes the person sick and is easily transmitted from one person to another, we could end up with a full blown epidemic.

The [PREDICT project](#), led by the One Health Institute at the school has been working since 2009 to identify viruses in wildlife such as bats, rodents and nonhuman primates around the world. The goal is to find viruses with potential for zoonotic outbreaks before they become a pandemic allowing governments to design policies that can better deal with outbreaks.

The project is a worldwide collaboration, including scientists, government personnel, physicians, veterinarians, biologists, laboratory technicians, students and members of the general public from across 35 countries in Asia and Africa. PREDICT researchers have identified hundreds of known (blue) and previously unknown (red) viruses with zoonotic potential in samples from humans and wildlife around the world. The size of each circle indicates the relative number of viruses found.



By comparing the DNA sequences of known pathogenic viruses with those discovered by PREDICT, researchers found that potentially harmful viruses are widespread across the globe. For example, coronaviruses related to the viruses responsible for SARS and Middle East respiratory syndrome (MERS) were found in Malaysia, Bolivia, China and Uganda, mostly in bats. One SARS-like coronavirus found in China called HKU3, was particularly troubling, PREDICT researchers say, because it shares many similarities with the human SARS coronavirus.

PREDICT has now moved into a second phase, PREDICT-2, with the scope broadened to include collecting samples from livestock as well as humans and wildlife. This new approach will serve to reveal viruses that already made the jump and are being shared by humans and other animals.

### 3D PRINTED MASK SERVES AS CAST FOR FRACTURED DOG SKULL

Loca, a 4-month-old female Staffordshire bull terrier, was bitten by another dog so severely that her right zygomatic arch (cheekbone) and mandible (jawbone) were fractured, and her temporomandibular joint (TMJ) suffered extensive damage. In addition, there were multiple puncture wounds on her face and neck.

Faculty members Drs. Frank Verstraete and Boaz Arzi and resident Dr. Colleen Geisbush of the veterinary



hospital's Dentistry and Oral Surgery Service (DOSS) knew this would be a challenging surgery due to the extent of the damage, but there were promising aspects to the case. First, Loca was young, which meant there was a good chance that the damage to the TMJ could correct itself with natural bone regrowth – something that may occur in dogs of Loca's early age. Second, this case offered them the opportunity to utilize a new face mask they developed with biomedical engineering (BME) students.



Recently, DOSS has been working with BME students to design an apparatus that could help the healing process of maxillofacial fractures, much like a traditional cast helps leg fractures heal. The result was the Exo-K9 Exoskeleton – a custom, 3D printed exoskeleton for dogs with maxillomandibular injuries. Loca was placed under general anesthesia for a cone-beam CT scan to fully characterize the extent of her injuries. The scan showed the extent of the injuries to her facial bones, jawbone, TMJ, and also a small fracture in the vertebrae of her neck. A salvage surgery was then performed to remove bone fragments from her right zygomatic arch and right caudal mandible. While Loca was recovering from surgery, the BME students got to work in the TEAM lab printing the first Exo-K9 to be used on a patient. Based on Loca's exact specifications from her CT

scan, the mask's dimensions would precisely fit her head, and could help optimize the healing process. As soon as the mask was finished printing the next morning, the students delivered it to the hospital, where Loca became its first recipient.

Loca did extremely well throughout her 3-day hospitalization. She almost immediately began eating soft food and remained comfortable on her pain medications. In addition to the Exo-K9, Loca was fitted with a padded neck bandage to provide stabilization of her neck fracture and limit her range of mobility during the healing process.

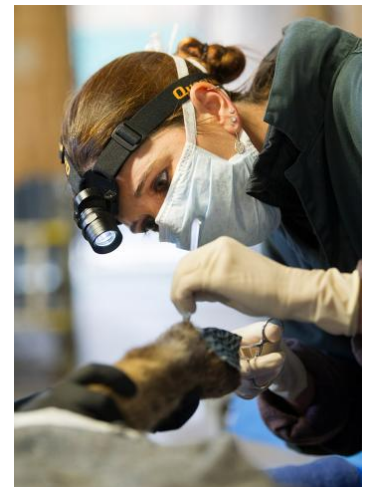
Loca returned to UC Davis for a 1-month recheck appointment that involved another cone-beam CT scan to characterize her fracture healing and further assess evidence of dental trauma to her permanent developing teeth. As suspected, new bone was forming in the place of her former TMJ. While positive, it would now be necessary for Loca to move her jaw routinely by eating hard kibble to encourage the new formation to become a semi-functional joint instead of a fusion with her skull.

Almost three months later, Loca received her third cone-beam CT scan which revealed that her previous surgery sites healed well and that the new TMJ formation was progressing nicely. The CT scan and full-mouth dental radiographs showed that her first and second molars on her right mandible were malformed. Those teeth were extracted without complication. Loca continues to recover well from her injuries, and all indications show the Exo-K9 to be a viable component to maxillofacial injury healing.

### **HEALING BURNED PAWS WITH FISH SKIN**

A 5-month-old mountain lion cub with burns on all four paws from the Thomas Fire was brought to a Department of Fish and Wildlife facility in Rancho Cordova for treatment. Jamie Peyton, chief of the Integrative Medicine Service at the Veterinary Medical Teaching Hospital, and board certified in the American College of Veterinary Emergency and Critical Care offered her expertise to help the cub.

Peyton's Integrative Medicine Service encourages vet students to combine traditional clinical techniques like antibiotics, with out-of-the-box thinking like acupuncture and chiropractic treatment. The mountain lion cub's paws were



treated with a salve Peyton makes from honey, olive oil, coconut oil and beeswax, and one was covered with tilapia skin as a temporary bandage.

“It’s like having little shoes on — fish shoes,” Peyton joked of the “biologic bandage. It’s the perfect idea to use for wild animals.” The fish skin, which to Peyton’s knowledge has never before been used on an animal, speeds up the healing process and has the added benefit of being completely harmless if it’s eaten by the cub — something that can’t be said about artificial bandages. She adapted the idea from a team using it on human burn patients in Brazil.

Once the cub has sufficiently recovered, he’ll be released into the care of Sonoma County Wildlife Rescue. He’s too young to survive alone in the wild, and that facility already has another mountain lion that needs a companion.

### **INTERNING WITH THE CHEETAH CONSERVATION FUND**



Erin Belleville (Class of 2020) was one of many veterinary students who participated in an externship or internship this year through our Office of Global Programs. The following is an excerpt from her account:

My summer of 2017 actually turned into winter as I was granted the opportunity of completing a veterinary internship with the Cheetah Conservation Fund (CCF) in Namibia. With funding provided by the school’s Office of Global Programs, I was able to spend eight weeks in Otjiwarango, Namibia gaining experience in research, as well as wildlife and exotic animal medicine.

The CCF conducts research, educates the public, and focuses on conservation of the species and the environment to manage the population decline of the endangered cheetah. This multi-faceted approach allowed me to gain knowledge and skills in many aspects of wildlife medicine. I had the opportunity to work with a variety of species from domestic dogs and livestock, to wild and rescued cheetahs, and African painted dog puppies.

Upon arrival at the facility, I was integrated into the daily management of the 17 year old cheetah named Sandy which was being treated for kidney failure. I was taught to administer her twice-daily subcutaneous fluids and medications and later I also helped manage and treat a second elderly cheetah with kidney failure. This cat was less keen to be handled by people, so she was treated in a squeeze cage, allowing me to learn and practice a different set of skills.

Both of these cats also presented me with an important research project: writing up case studies, for which I researched the disease processes, treatment options, and summarized the progression of their cases including all treatments and results of those treatments. I was also able to help with a variety of other research studies including fecal monitoring for hormones, genetics testing, parasite testing, and a study on brucellosis in the local livestock. While at the CCF I was able to collect samples on a wild male cheetah, watch dental cleanings, extractions, and root



canals, gain experience monitoring anesthesia, intubating, drawing blood, placing catheters, and even performing a necropsy after a humane euthanasia of an older cheetah.

It is difficult to express in so few words what an incredible experience my internship at CCF provided. I am grateful to have had the chance to learn from experienced veterinary staff, build lasting relationships with fellow interns, and blend with a variety of cultures all working toward the same goal of conservation and education.

### **VETERINARIANS WARN OF POISONOUS MUSHROOMS**

Veterinarians at the school are warning pet owners to be aware of *Amanita* mushroom intoxication. The *Amanita phalloides* version, commonly known as the death cap mushroom, is extremely toxic to animals (and humans).

Found throughout Northern California and many other locations, *Amanita phalloides* can be potentially fatal to animals (and people) with ingestion of only a small amount. One of the most poisonous of all known mushrooms, its toxins cause acute liver failure and can also damage other organs such as the kidneys and the intestinal tract.



On December 4th, an 11-week-old male Alaskan Klee Kai puppy was admitted to the veterinary hospital that ingested the mushrooms over the weekend. Animals that ingest this mushroom can have complete liver failure within 24 hours. If an animal does ingest the mushroom, emergency treatment to try to remove as much of the toxin is imperative. Recent research suggests that techniques such as total plasma exchange and plasma absorption (using a specialized machine to remove toxins from the blood), if performed soon after ingestion, may remove the toxin and prevent a fatal poisoning.

Unfortunately in this case too much time had passed and the young puppy died of liver failure, despite the veterinarians' best efforts to save him.

### **UC DAVIS GENOME RESEARCHERS FACILITATING NIH DATA COMMONS PILOT**

Researchers at the school and the [Genome Center](#) are taking part in an ambitious NIH initiative to make it easier for scientists to share research data and scientific tools online.

“Harvesting the wealth of information in biomedical data will advance our understanding of human health and disease,” said NIH Director Francis S. Collins. “However, poor data accessibility is a major barrier to translating data into understanding. The NIH Data Commons Pilot Phase is an important effort to remove that barrier.”

NIH is supporting the pilot project with 12 grants totaling \$9 million over four years. Titus Brown, associate professor in the Department of Population Health and Reproduction at the school is the principal investigator of one of the grants funded by the program.

His role in this initial six-month consortium is to try to channel the larger goals of the consortium via a series of workshops. The pilot phase of the NIH Data Commons will test the feasibility of making “digital objects” through the cloud. “Digital objects” can include both data, such as DNA or protein sequences and tools for analyzing and handling data. The end goal is to accelerate biomedical discoveries by making biomedical research data Findable, Accessible, Interoperable, and Reusable (FAIR) for more researchers.





To reach those goals, the researchers will have to solve significant problems. It's not just a case of uploading files to a server: all potential users need to be able to find and access the information, datasets need to be compatible and function together, and tools and databases need to function across multiple different servers and platforms. At the same time, the Data Commons needs to authenticate users, verify data and protect patient data and other sensitive information.

### **NEWLY ELECTED AAAS FELLOWS ADD HONOR TO THE SCHOOL**

The American Association for the Advancement of Science (AAAS) has awarded the honor of Fellow to three of our distinguished faculty in recognition of their contributions to science and technology, scientific leadership, and extraordinary achievements across disciplines.

“Election of Drs. Conrad, Mazet and McSorley as Fellows of the AAAS provides clear evidence of their outstanding contributions to science nationally and internationally,” said Dean Michael Lairmore. “We are very proud of these individuals and honored to have them as a members and leaders within our school.”



**Patricia A. Conrad, DVM, Ph.D.**  
Associate Dean for Global Programs  
Professor of Parasitology and University Distinguished Professor  
Co-Director, University of California Global Health Institute



**Jonna A. Mazet, DVM, MPVM, PhD**  
Executive Director, One Health Institute  
Professor of Epidemiology and Disease Ecology



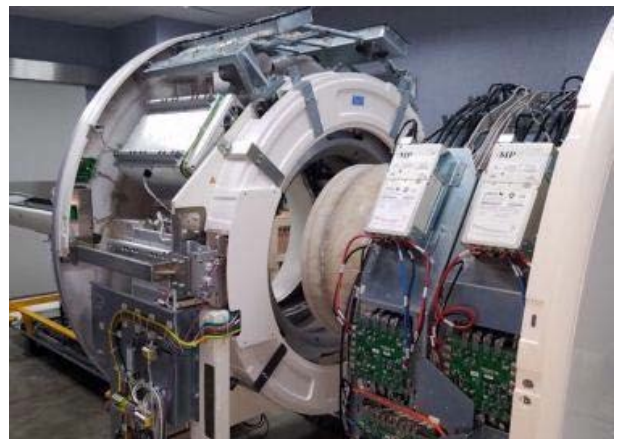
**Stephen J. McSorley, PhD**  
Professor and Interim Director  
Center for Comparative Medicine

The new AAAS Fellows will be recognized on Saturday, Feb. 17, 2018 during the Fellows Forum at the 2018 AAAS Annual Meeting in Austin, Texas.

### **AT THE FOREFRONT OF IMAGING**

The accuracy of enhanced imaging to diagnose disease and develop a treatment plan is essential to providing veterinary care. Imaging is also essential for clinical research— allowing faculty to see where disease exists, how it progresses and how it responds to treatment. In 2015, veterinary radiologists from the school were the first to image a horse using a prototype of a newly created positron emission tomography (PET) scanner that was here to image brain tumors in dogs for a clinical trial. The school later acquired the scanner permanently and continues to make breakthroughs in demonstrating the success of PET scanning—detecting lesions that other advanced modalities (such as CT or MRI) do not identify.

The school's PET scanning capabilities are now expanding through a new Mini Explorer II project. This next



generation PET scanner is expected to be operational within the next few months. It will provide a significant increase in sensitivity for total body imaging and perform scans more quickly with a much lower radiation dose— reduced by 40 times.

The Mini Explorer II is made possible by a gift from the estate of the late Ernest and Madeline Wellington to the Center for Companion Animal Health.

Bringing the Mini Explorer II to the school is the result of a collaborative effort by UC Davis biomedical engineer Dr. Simon Cherry (College of Engineering), medical physicist Dr. Ramsey Badawi (School of Medicine) and the veterinary hospital's Diagnostic Imaging Service. The school's multidisciplinary approach discovers new ways to prevent, diagnose and treat diseases by harnessing the expertise and resources of the entire university behind each veterinarian.

### RESEARCHERS FIND MUTATIONS BEHIND 'TIGER EYE' IN PASO FINOS

Genetic researchers have learned that an unusual eye color in Paso Finos seems to have no association with eye abnormalities. The “tiger eye”—featuring a bright yellow, amber, or orange iris—can give this gaited breed a dramatic look, apparently without side effects, said Rebecca Bellone, PhD, associate adjunct professor in the University of California, Davis, Department of Population Health and Reproduction and Veterinary Genetics Laboratory.



Bellone and two of her undergraduate students, Maura Mack and Elizabeth Kowalski, recently investigated genomic information on more than 300 horses, including over 70,000 markers across the genome of 24 Puerto Rican Paso Finos. This revealed two specific mutations on the *SLC24A5* gene that appear to be responsible for the tiger-eye coloring.

“Mutations in this same gene in humans causes a form of albinism in the iris and the hair and skin,” Bellone said. “The equine mutations, however, seem to affect iris color alone.”

Clinical evaluations did not reveal any vision issues in tiger-eye horses, but more research is needed to confirm there are no ocular anomalies.

### THE DONALD G. LOW-CVMA PRACTITIONER FELLOWSHIP

This fellowship is a joint activity between the California Veterinary Medical Association (CVMA) and the UC Davis School of Veterinary Medicine, designed to meet California practitioner needs not available within residencies or other current programs. It is specifically intended for California practitioners. The program provides unique opportunities for practitioners to learn in the clinical setting at the Veterinary Medical Teaching Hospital or another program within the school. Selected participants spend 20 days in the program in one of the participating services, centers or labs that have a caseload sufficient to sustain a fellow in the coming year.



Applications for the 2018-19 academic year are due by May 14, 2018. For more information please visit the website at: [www.vetmed.ucdavis.edu/CE/about/don\\_low/index.cfm](http://www.vetmed.ucdavis.edu/CE/about/don_low/index.cfm)

## VETERINARY CENTER FOR CLINICAL TRIALS

The Veterinary Center for Clinical Trials (VCCT) works with faculty and collaborators across the campus to facilitate more than 70 active clinical trials aimed at advancing medical care for veterinary patients in a variety of disciplines.

Current trials include: Canine studies in Oral Melanoma and Primary Glaucoma in American Cocker Spaniels; and Feline studies in Lymphoma, Ureteral obstructions and Feline Upper Respiratory Tract Disease. For a complete listing on current trials visit the VCCT website: [www.vetmed.ucdavis.edu/clinicaltrials/index.cfm](http://www.vetmed.ucdavis.edu/clinicaltrials/index.cfm)

**Current Veterinary Clinical Trials**  
**DIABETIC REMISSION**  
Assessing a New Therapy for Managing Diabetic Remission in Cats

**Background & Purpose**  
The objective of this study is to evaluate the benefit of a new therapy for managing diabetic remission in cats.

**Participation Requirements**  
• Must be a cat of any breed, age, sex, or color.  
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• Must be a cat of any breed, age, sex, or color.

**Principal Investigator**  
Dr. Charles C. Chaffin

**CONTACT INFORMATION**  
Dr. Charles C. Chaffin  
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1015 FIDELITY DRIVE  
DAVIS, CA 95616  
530-752-1100  
chaffin@ucdavis.edu

**Procedures**  
• The study will involve a series of blood samples and urine samples.  
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**Owner Responsibilities**  
• Owners must ensure their cat is kept on a consistent diet.  
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**Benefits**  
• Owners will receive a comprehensive medical evaluation.  
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**Learning Veterinary Medicine, Advancing Society's Health**

## UPCOMING EVENTS

- Salmon Disease Ecology Workshop 2018 - March 14, 9 a.m.-5 p.m.
- Diversity Day - March 29, 2018, 5-10 p.m.
- UC Global Health Day - April 22, 2018, 9 a.m.-4 p.m., UC San Diego
- Raptor Center Open House - May 5, 9 a.m.-3 p.m.
- State of the School Address - May 25, 2018, 4-5 p.m.
- Commencement - May 26, 2018, 11 a.m.-1 p.m., Mondavi Center - Speaker: Dr. Andrew Clark

## CONTINUING EDUCATION

- Winter Conference/Super Saturday - February 3, UC Davis
- 32nd Annual Charles Heumfres Memorial Lecture - February 3, UC Davis
- Wildlife & Exotic Animal Symposium - February 24-25, UC Davis
- Renal Week - March 19-24, UC Davis
- Special Guest Temple Grandin - April 28, UC Davis

For info & registration: [www.vetmed.ucdavis.edu/CE/index.cfm](http://www.vetmed.ucdavis.edu/CE/index.cfm)

## FACULTY PUBLICATIONS

[Neuroanatomy of the spleen: Mapping the relationship between sympathetic neurons and lymphocytes](#)

Murray K, Godinez DR, Brust-Mascher I, Miller EN, Gareau MG, Reardon C (PMID: 28753658)

[Morbidity and mortality in infant mountain gorillas \(\*Gorilla beringei beringei\*\): A 46-year retrospective review](#)

Hassell JM, Zimmerman D, Cranfield MR, Gilardi K, Mudakikwa A, Ramer J, Nyirakaragire E, Lowenstine LJ. (PMID: 28749595)

[Central and peripheral reservoirs of feline immunodeficiency virus in cats: a review](#)

Eckstrand CD, Sparger EE, Murphy BG. (PMID: 28749325)

[Diverse and highly recombinant anelloviruses associated with Weddell seals in Antarctica](#)

Fahsbender E, Burns JM, Kim S, Kraberger S, Frankfurter G, Eilers AA, Shero MR, Beltran R, Kirkham A, McCorkell R, Bergartt RK, Male MF, Ballard G, Ainley DG, Breitbart M, Varsani A (PMID: 28744371)

[Genome Sequence of Canine Polyomavirus in Respiratory Secretions of Dogs with Pneumonia of Unknown Etiology](#)

Delwart E, Kapusinszky B, Pesavento PA, Estrada M, Seguin MA, Leutenegger CM (PMID: 28729262)

[Echocardiographic Parameters of Clinically Normal Geriatric Rhesus Macaques \(\*Macaca mulatta\*\)](#)

Ueda Y, Gunther-Harrington CT, Cruzen CL, Roberts JA, Stern JA (PMID: 28728613)