



ORCAS on the Brink of Survival

Last summer, a mother orca known as Tahlequah (J35) captured the world's attention by mourning the death of her newborn calf for 17 days by carrying its body more than 1,000 miles through the Salish Sea off the coast of northern Washington.

Right on the heels of that story, a four-year-old whale by the name of Scarlet (J50) began dramatically dropping weight, as demonstrated by the "peanut head" shape in the small photo above. (A killer whale's neck should be smooth and free of indentation).



Southern Resident Killer Whales are a genetically distinct population of orca that depend on chinook salmon for survival. But there's not enough salmon to keep them fed.

Both of these whales are members of the Southern Resident Killer Whale population studied by researchers with the [SeaDoc Society](#)—a program of the [UC Davis School of Veterinary Medicine's Karen C. Drayer Wildlife Health Center](#). Organized into J, K and L pod families, these orcas number just

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Welcome Class of 2023



UC Davis welcomed a new class of 148 DVM students in August; among those, 29 are first-generation college students and two are from multigenerational DVM families whose mothers served as past presidents of the California Veterinary Medical Association. One new student has a pet steer who enjoys snacking on carrots and having his belly brushed, but Dean Michael Lairmore quickly dashed any hopes of keeping him in a home room of Valley Hall.

Lairmore highlighted that these students will benefit from generous donors to the school who help provide numerous grants and scholarships to our students—nearly \$7 million this past year—allowing them to keep their student debt well below the national average.

“The roles of veterinarians in our society are expanding into areas based not on the letters behind your name,” Lairmore said, “but the talent you bring to address a problem we all face in our interconnected world.”

THE CHANGING FACE of Admissions

As we welcome the Class of 2023, we chatted with Brandy McCall, the new director of [Outreach and Admissions](#), about the challenges and excitement of her role.

What excites you most about moving into your new position?

I have the ability to directly impact the admissions process as the field of veterinary medicine seeks to attract a more diverse pool of prospective applicants. I can also look at the admissions data in greater detail to determine where we need to improve in our recruitment process or the way we recruit.

What do you see as some of the biggest challenges in admissions on a general level?

Getting into veterinary school is very competitive with many more applicants than spots. On average, each student applies to four colleges in hopes of solidifying a position in one of the programs. This can be overwhelming. When we talk about attracting students from disadvantaged backgrounds, this could create even greater



Brandy McCall on far right with [Summer Enrichment Program](#) students.

73 individuals and represent some of the most critically endangered marine mammals in the United States.

Southern Resident Killer Whales are a genetically distinct population of orca that depend on chinook salmon for survival. But there's not enough salmon to keep them fed. Increasing noise and disturbance from large boats make this problem worse, and starving orcas are especially prone to ill effects of toxic substances in the environment and their food.

"It's a frightening triple whammy," said Joe Gaydos, SeaDoc's science director. "This is happening at a time when cranes dot the growing Seattle skyline and Canada has approved expansion of the Trans Mountain pipeline, which will only increase vessel traffic and underwater noise."

Gaydos has played a key role in Washington's Southern Resident Killer Whale Task Force over the past two years, advocating for solutions rooted in science and championing recovery efforts that are not simply cosmetic, but comprehensive and holistic.

Last fall, the task force delivered 36 first-year recommendations. Governor Jay Inslee worked with state agencies to include most of the recommendations in his proposed budget and requested legislation. In what was

acknowledged as the best session for environmental legislation in four decades, the legislature passed key orca policy protections related to noise, vessel traffic, toxins, oil spills and shoreline habitat.

Meanwhile, SeaDoc has collaborated with the National Marine Mammal Foundation on an effort to develop a database of individual health records for the whales, all of which are named and can be individually identified.

When researchers noticed Scarlet's decline last summer, a collaborative team mobilized to perform the first-ever veterinary intervention on a wild killer whale, including breath samples and administration of antibiotics.

Unfortunately, it was too late for Scarlet, who fell behind her family weeks later and was never seen again. But that intervention represents a significant development in the treatment of this struggling population. Similar to the individual health monitoring efforts of programs like Gorilla Doctors, there is now precedent for veterinary intervention when a whale is severely ill.

Given what the Southern Residents are up against, it's not a matter of if, but when that time will come again. Visit seadocsociety.org for more updates on these whales.

disparities in their attempts in trying to achieve their goals of becoming a veterinarian. What I hope to communicate is this: there is an opportunity for everyone here at UC Davis. You may not have a 3.7 GPA, but there are other qualities that can make you competitive. You have to have confidence to see the process through.

What are some of the outreach initiatives to reach diverse populations of kids at an earlier age so they can see themselves here?

We recently implemented programming to target younger students, in addition to high school and college. We now have Vet Med Youth Camps for 3rd-5th grades and "This is How We Role," a grant-funded after-school program for K-4 with a veterinary medicine focus in the local farming community of Esparto. This helps reach Latinx students, as well as those from Native American communities. We hope by introducing them to veterinary medicine at a younger age, that will help them identify with careers they want to pursue. We're also partnering with colleges in the central valley such as UC Merced and Fresno State in hopes of making ourselves more accessible.

CLASS OF 2023

Species interest



Small animal (51)



Small/equine (8)



Mixed animal (27)



Food animal (7)



Wildlife (24)



Lab animal (4)



Zoo (5)



Dairy (3)



Large animal (6)



Avian/exotics (3)



Equine (8)



Fish (2)

The Mini Explorer II PET/CT scanner helps to evaluate a new treatment that oxygenates tumors, leading to a better response to radiation therapy. This scan shows a hypoxic tumor in a dog's tongue.

A LOOK INSIDE

Cancer can be a devastating diagnosis for any pet owner. But now, thanks to new advanced imaging equipment known as the Mini Explorer II, UC Davis veterinarians can diagnose and treat disease earlier, with greater precision.

This imaging system—part positron emission tomography (PET) and part computed tomography (CT) scanner—is the first of its kind in the world and puts UC Davis at the forefront of cancer diagnostics and treatment. It will allow veterinarians to pioneer advancements in the coming All Species Imaging Center.

One of the most advantageous uses of PET in human medicine is to stage cancer, explained Dr. Erik Wisner, director of [Imaging Services](#). While other forms of imaging (MRI, CT, radiographs, and ultrasound) are representative of imaging anatomy, nuclear medicine instead maps out physiologic or metabolic processes.

“Cancer cells behave differently than normal cells in terms of glucose metabolism,” Wisner said. “The most common radiopharmaceutical agent used in PET scanning behaves metabolically just like glucose, so it is taken up by cells. When one of those cells is cancerous, the agent becomes trapped in the cell, and it cannot be metabolized. A metastatic lesion in a lymph node might not be noticeable on a CT, but the agent trapped in the cell stands out on a PET scan.”

Through the [Veterinary Center for Clinical Trials](#), Dr. Allison Zwingenberger is using the Mini Explorer II to conduct a carcinoma trial in dogs, examining a new imaging agent that may bind to mammary, colon, head, neck, pancreas, or prostate carcinomas, making the cancer easier to detect in the body.

Another advantage to the Mini Explorer II is the decreased time needed to conduct a scan. Typical PET scans can take up to 45 minutes to record the information needed for a diagnosis. Radiologists believe that the increased sensitivity of the new scanner may allow them to reduce

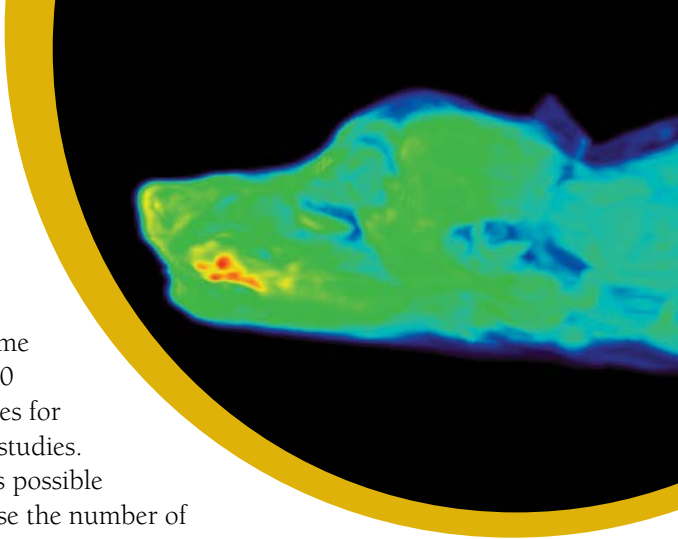
this time to 5-10 minutes for some studies.

This is possible because the number of PET detectors is much greater than a conventional scanner, allowing a larger volumetric acquisition. For example, the head, neck, and abdomen of a 30-pound dog can be scanned in two acquisitions instead of multiple readings required with a conventional scanner.

In another clinical trial, soft tissue surgeon Dr. Bill Culp is using the scanner to evaluate an alternative treatment for nasal tumors that eliminates the blood supply to the tumor, thus decreasing its size. This new treatment could help patients avoid lengthy radiation therapy and also lead to alternative treatments for humans.

In addition to cancer applications, the PET scanner is being used for orthopedic, neurology, and cardiology diagnosis, among others. Oral surgeon Dr. Boaz Arzi is conducting a trial on the scanner to assess its capabilities in determining the cause of vague jaw joint pain. These cases typically pose a diagnostic challenge because there are several disorders that can cause pain in that region. The precision of the PET/CT scan may help pinpoint the origin of the pain and determine a specific course of treatment.

The scanner (and its predecessor Mini Explorer I – currently at the [Primate Center](#)) was designed as a human model prototype by Department of Biomedical Engineering faculty member Simon Cherry with Ramsey Badawi, a physicist in the Department of Radiology at UC Davis Health. That human model, EXPLORER, the world's first total-body PET scanner that can capture a 3D picture of the whole human body at once, is now up and running at UC Davis Health.



ONE HEALTH SYMPOSIUM

Interfaces: One Health at Borders and Margins

Saturday, November 2

The 6th annual [One Health Symposium](#) will explore issues impacting human, animal and ecosystem health at urban/rural interfaces and political borders. Hosted

by the [One Health Institute](#) and [Students for One Health](#), the daylong symposium will feature expert panels, roundtable discussions, networking and student research projects. The [2019 Calvin Schwabe Lecturership](#) speaker is Christine Kreuder Johnson, professor of epidemiology and director of the One Health Institute's [EpiCenter for Disease Dynamics](#). Register to attend at <https://ce.vetmed.ucdavis.edu/symposia-events/6th-annual-one-health-symposium>

BUILDING THE FOUNDATION

for Excellence in Veterinary Medicine

Harold “Hal” Parker was a proud member of the Class of 1952—the school’s inaugural graduating class of 42 students, nearly all World War II veterans. He was pivotal in building the foundation for excellence in veterinary medicine at UC Davis, starting with the groundbreaking ceremony for Haring Hall in 1948.

Thanks to a gift from his wife, Annette, Dr. Parker’s legacy will continue to help the school break ground. One of the major projects planned for the future [Veterinary Medical Center \(VMC\)](#) is the Small Animal Clinic East Wing. The consultation room located on the clinic’s second-floor emergency suite will be named “In honor of Harold R. Parker, DVM, Ph.D. & Annette D. Parker.”

“The School of Veterinary Medicine meant so much to Hal,” Annette said. “I couldn’t think of a better way to honor his legacy of dedication, innovation and vision than creating a philanthropic opportunity at the new Veterinary Medical Center, at the number one veterinary school in the nation.”

As an undergraduate, Parker was founder and president of the Pre-Veterinary Association and instrumental in spearheading the effort to locate the School of Veterinary Medicine at UC Davis. After a series of livestock disease outbreaks during the 1930s, agricultural producers, legislators and the community pushed for the establishment of a veterinary institution in California. In 1948, then University of California President Gordon Sproul presented Parker with a shovel gilded in blue and gold, and commissioned him to conduct the groundbreaking of Haring Hall.

In one of his memoirs, Parker recounted that 1949 was another monumental year for him—completing his first year of veterinary school and marrying the love of his life, Annette. After graduation, the couple moved to Watsonville, California, where Parker maintained a private practice for four years before returning to Davis to pursue a Ph.D. in animal physiology and to raise his family.

Parker joined the school’s faculty as a physiologist in 1960. During his 27-year career at Davis, he played a dynamic part in the development of modern veterinary medical specialties, including intensive care, and emergency and critical care services at the teaching



Annette Parker holds a photo of her late husband, Dr. Harold “Hal” Parker ’52.

hospital. His innovative work also transcended boundaries through collaborations with human medicine specialists, contributing to hemodialysis and hip replacement for people.

Since its establishment, the school has educated nearly 6,000 DVM degree graduates and addressed societal needs by working to benefit the health of animals, people, and the environment in California and beyond. With help from Annette Parker and other donors, the VMC will transform excellence in veterinary medicine and will be built to promote clinical innovation, cutting-edge research, and compassionate healing.

Is there someone special

that you wish to honor? Please consider a philanthropic opportunity at the UC Davis Veterinary Medical Center. For more information, contact us at 530-752-7024 or visit www.vetmed.ucdavis.edu/giving/vmc.

New Approach for **CANINE EPILEPSY**

Every evening, Dave Jones and his dog Griffin snuggle on the couch for 30 to 45 minutes to watch a little television. Grif, a 4-year-old whose freckles suggest Brittany spaniel, loves the attention and it gives Jones a chance to recharge the implanted radio device near Grif's shoulder that records signals from four electrodes deep in his brain.

Grif is enrolled in a [pioneering two-year clinical trial](#) with the UC Davis veterinary hospital and the Mayo Clinic to better understand and treat canine epilepsy. A rescue with unknown medical background, Grif came home with Jones in May 2017 and started having seizures three months later. UC Davis neurologists made the diagnosis and have been caring for Grif ever since. Despite being on medication, he was still suffering seizures every three to four weeks, so his doctors recommended the trial designed to investigate the efficacy of a new device to determine when a dog is likely to have a seizure, allowing researchers to treat pre-emptively.

"While this trial does not guarantee a cure for Griffin, his participation may lead to improved treatment for other dogs and provides researchers with a good model for human epilepsy," Jones said.

The first part of the trial is to gather information about the electrical signals happening in Grif's brain that will hopefully indicate when he is likely to suffer a seizure. The radio device attached to the electrodes continuously transmits those signals to a cellphone-sized device that Grif carries in a vest. This device transmits the information to a tablet and from there, the data go to Mayo researchers who aim to develop an algorithm indicating when Grif will have seizures.

With that information, in the second part of the trial, the researchers hope to send signals from Mayo to Grif's brain when a seizure appears imminent to stimulate his brain and perhaps stop the seizure from happening. For all of this to

work, Grif has to be kept within range of his tablet and Jones has to ensure that all devices are charged, including the one under Grif's skin (the charge comes through a wand that he holds over the device nightly).

Oberon is another dog enrolled in the trial and is already in the second stage of the trial where he receives stimulus through the electrodes when his brain indicates that a seizure is imminent. While the clinical trial is ongoing and results have not yet been statistically analyzed, his owner, Dr. Liz Stelow, reports a decrease in seizures and improved quality of life.

"If this clinical trial proves successful, it will revolutionize treatment for people with epilepsy," said Dr. Beverly Sturges, the UC Davis neurologist who serves as prime investigator for the veterinary trial. "But we couldn't do this project if we didn't believe it was helping these dogs along the way."

The Mayo Clinic is treating humans in a similar manner, and collaborating with UC Davis on the canine side offers translational research to benefit both species.

"The hope is that, through control of seizures, we can get people and dogs off their anti-seizure meds and thus allow them to get back to some semblance of their normal lives — in Griffin's case, running and jumping again without the side effects of daily doses of phenobarbital," Jones said. "That's my wish for him and other dogs, and people, too."

Owners interested in more information can contact Chelsea Crowe, cmcrowe@ucdavis.edu or 530-752-7267.

Oberon (dog on left) and Griffin are both enrolled in a two-year clinical trial to better understand and treat canine epilepsy. Their owners, Liz Stelow and Dave Jones, carry tablets that display electrical signals from the dogs' brains in real time.



Prince Charming was in rough shape last November.

THE FRESH PRINCE of Curry County

Prince Charming was in sad shape when he first came into the UC Davis veterinary hospital. As a survivor of the Camp Fire in November 2018, the mini horse had suffered multiple burn injuries and his mane had to be shaved due to extensive singeing. After a stay in the [ICU](#), he spent nearly two months recovering at the [Center for Equine Health](#).

Prince had escaped death before in 2013 when his owners, Laura Bruns and Jim Hart, made the winning bid at an auction to keep him from slaughter. When the deadliest and most destructive wildfire in California history ripped through the two-acre property where Prince lived, Laura and Jim

The Call of **THE WILD**

Dr. Jackie Gai '01 was always fascinated by wildlife, but it was the experience of serving as a surrogate elephant mom that awakened a passion for their welfare in captivity.

She had been working as a zookeeper and veterinary technician at the Oakland Zoo for several years when one of the African elephants had a surprise birth in 1995. The calf, named Kijana, was rejected by his mother (not uncommon in captive elephants) so Gai and seven other keepers cared for him around the clock.

At the same time, Gai was completing her prerequisites for veterinary school at night. After two other careers in law enforcement and corporate sales, Gai had decided to pursue her biggest dream of becoming a veterinarian. She was admitted to UC Davis in 1997 on her third attempt.

Despite his careful hand-raising and care, Kijana died of a herpes virus infection at 11 months old. He was only the 2nd elephant in the U.S. to come down with the disease and the first African elephant.

"That experience was really trial by fire for me,"

Gai said. "It woke me up to a host of animal welfare issues for captive wildlife. There are so many medical issues brought about by captivity that aren't adequately addressed by exotic animal medicine textbooks."

Gai graduated from the UC Davis School of Veterinary Medicine in 2001 and joined a small animal practice in Marin, but it wasn't long before the call of the wild lured her back. The call actually came one day from Pat Derby, the late founder of the [Performing Animal Welfare Society \(PAWS\)](#).

"I'll never forget, she called out of the blue and said 'We're looking for a veterinarian with elephant experience who is concerned about their welfare.' It was the perfect match," Gai said.

Gai has worked with PAWS ever since and serves as the director of veterinary services.

"No matter what job I'm doing, I like to work my way through a problem using my brain, intuition



Dr. Jackie Gai helped raise Kijana, a baby African elephant at Oakland Zoo while an elephant keeper in 1995. Also in the photo is Rafiki, who was Kijana's goat friend.

and compassion," Gai said. "At PAWS, we treat each animal as an individual and focus on their well-being, both physical and mental. We appreciate and respect their social structures and emotions. I get to delve into a deep understanding of the animals and their unique histories, which unfortunately all too often includes abuse or neglect."

PAWS was founded in 1984 by Derby as the first elephant sanctuary in the U.S. The sanctuary grew over time and now includes a 2,300-acre site in San Andreas, California that provides a home for animals who have been the victims of exotic and performing animal trades. That currently includes 12 tigers, eight elephants, five bears, and a number of other species.

Gai's other passion is encouraging others and giving back through mentoring veterinary students. She established the Christine Parker Marino Memorial Wildlife Scholarship in honor of a registered veterinary technician who worked in the [Companion Exotic Animal Medicine and Surgery Service](#) at the UC Davis veterinary hospital and was an inspiration to many students.

Gai also likes to pass along valuable advice she received as a student from Dr. Pat Conrad who served as one of her mentors. "Never be afraid to pursue your dream. Don't listen to voices that try to tell you that you can't."

fled with only the nightclothes on their backs and escaped by ramming their car through a closed gate and flames. Prince managed to escape as well but lost his best friend, a goat, in the fire.

When he first arrived at UC Davis, nobody knew who his owners were. But Jim and Laura soon found him through social media. His medical costs were covered, thanks to generous donors to the [Veterinary Catastrophic Need Fund](#), established to cover the treatment of animals from disasters like the Camp Fire.

With his long locks back, Prince is living the dream with a new herd of equine friends in Brookings, Oregon where Jim and Laura started a non-profit rescue group called [West Coast Minis](#). When he's not working as a certified therapy horse, Prince enjoys walks on the beach. For updates on Prince and the other minis, you can follow them on Facebook at [West Coast Mini Companion Horses](#).



Prince recently won 2nd place in the Curry County parade.

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(VMDN)
School of Veterinary Medicine
University of California
One Shields Avenue
Davis CA 95616-8736

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Veterinary Continuing Education **CALENDAR**

530-752-3905
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The school provides lifelong learning through more than 20 annual offerings in the Veterinary Continuing Education program.

For a complete listing of events, visit: <https://ce.vetmed.ucdavis.edu/>.

Fall Festival

(in conjunction with Alumni Reunion Weekend, October 25-27)
October 27, UC Davis

6th Annual One Health Symposium

November 2, Location TBA

2020 Winter Conference

February 22-23, 2020, UC Davis

2020 Wildlife and Exotic Animal Symposium

March 7-8, 2020, UC Davis

Veterinary Center for **CLINICAL TRIALS**

Do you have a dog with metastatic osteosarcoma or melanoma that has spread to the lungs? Consider enrolling your dog in our new immunotherapy treatment trial through the Veterinary Center for Clinical Trials (VCCT). Your participation could improve the life of your canine companion and provide researchers with new treatment options for other dogs.

The VCCT is dedicated to facilitating high quality clinical research for the benefit of veterinary and human medicine. In addition to cancer, they offer clinical trials aimed at advancing medical care for our veterinary patients with a variety of other diseases, including:

- Spina bifida in English bulldogs
- Hypertrophic cardiomyopathy in cats
- Chronic kidney disease in cats
- Ventricular septal defects in Arabian horses

For more information:

<https://clinicaltrials.vetmed.ucdavis.edu/>



Learning to Teach **WITH IMPACT**

Members of the [Teaching Academy of the West Region Consortium of Veterinary Colleges](#) had the chance to experience a virtual reality headset to learn anatomy during their fourth biennial conference held on the UC Davis campus in June. The VR experience proved a big hit at the three-day meeting drawing approximately 70 educators from six veterinary colleges—Colorado State University, Oregon State University, UC Davis, Washington State University, Western University of Health Sciences and Midwestern University—to share ideas and best practices for teaching veterinary students.

