TIPPING POINT

Cummings School herdsman Scott Brundage (back to cam-
er) prepares to demonstrate sheep tipping, a basic of herd
management, to a group of newbie farmers. As the eat-local
movement grows, more folks are flocking to Tufts’ Livestock
Field Schools, which take a hands-on approach to the ABCs
of animal husbandry. For more on the story, turn to page 6.

Rescued

How wildlife vets took on the Gulf spill

PLUS: RABIES IN NEPAL • FEEDING FIDO • ATTACK OF THE SUPERBUG
Macaw In A Coal Mine

For 27 Years, Jamie Pendleton’s Blue and Gold Macaw, Lady Cromwell, enjoyed perfect health—until the one day Pendleton heard her pet screeching in distress. She found the bird flapping her wings erratically, her talons clenched and eyelids fluttering. It marked the start of near-weekly seizures.

“It was just horrible,” says Pendleton. “I’d hold her until she stopped seizing. A couple of times I caught her starting to fall off her perch.” After months of unsuccessful treatment near her home in New York, Pendleton drove her beloved companion three and a half hours to the Cummings School’s Foster Hospital for Small Animals.

What transpired next was a medical mystery worthy of the television show House.

The parrot’s previous blood tests showed a toxic level of zinc. Joerg Mayer, Tufts’ exotic animal specialist, hospitalized the macaw for intensive hydration and chelation therapy, injecting agents that bind with the metal in the body’s tissues so it can be released into the bloodstream and flushed out through urination. Mayer asked Pendleton to have the bird’s cage tested for heavy metals since some have been known to have toxic finishes. The cage tested positive for both zinc and lead, and Pendleton replaced metals since some have been known to have toxic finishes. The cage was released into the bloodstream and flushed out through urination.

Mayer injected Lady Cromwell with a solution of zinc. Joerg Mayer, Tufts’ exotic animal specialist, hospitalized the macaw for intensive hydration and chelation therapy, injecting agents that bind with the metal in the body’s tissues so it can be released into the bloodstream and flushed out through urination. Mayer asked Pendleton to have the bird’s cage tested for heavy metals since some have been known to have toxic finishes. The cage was released into the bloodstream and flushed out through urination.

“Tell Jamie, ‘you still have zinc somewhere in your house. We are going to find it.’” says Mayer. He introduced her to Eric Koslowski, of Environmental Testing and Research Laboratories in Leominster, Mass., a client of Mayer’s with whom the vet has worked on cases and scientific studies.

“We looked at the toys. The food. The room,” recalls Koslowski. “The well water was supposed to be OK, but we double checked.” It was clean, but the water coming out of the kitchen faucet was loaded with zinc. The culprit: several corroded galvanized tanks used to store the water. The family switched to bottled water until the tanks were replaced by fiberglass ones—an urgent fix, given the zinc toxicity can be fatal to humans.

The Scoop on Antifreeze Poisoning

Mary-Anna Labato, V83, the president of the Massachusetts Veterinary Medical Association and a clinical professor at the Foster Hospital for Small Animals at the Cummings School, responds to a reader’s concern about antifreeze poisoning:

Q: I heard that Massachusetts passed a new antifreeze law. Does that mean I don’t have to worry if my cat accidentally ingests some?

A: Unfortunately, no. Although there are less-toxic coolants and antifreezes than those containing ethylene glycol, the new law does not mandate the utilization of those safer chemicals. Instead, it requires that commercially sold antifreezes contain a “bittering agent,” which does not make the antifreeze any less poisonous. It does turn the normally sweet-tasting liquid bitter so that pets and kids might stop drinking it before consuming a toxic amount. The law also only applies to commercially sold antifreeze, not the kind that gas stations and repair shops buy in bulk—something to keep in mind if you have your radiator flushed or filled professionally.

“Ethylene glycol isn’t actually toxic to cats and dogs until their bodies begin to metabolize it. But if the early stages of antifreeze ingestion are missed or go untreated, crystals form in pets’ kidneys, causing acute, long-term damage. Only a few teaspoons can lead to kidney failure. If you suspect your pet has ingested antifreeze (symptoms mimic human behavior after too much alcohol), head immediately to your local veterinarian, who will induce vomiting and use charcoal solutions to prevent absorption of the antifreeze into the gastrointestinal tract. He or she may start by delivering an antidote intravenously or referring your pet for hemodialysis to remove the toxins. Speed is absolutely critical to successful treatment.

Please email your questions for “Ask the Vet” to Genevieve Rajewski, Editor, Tufts Veterinary Medicine, at genevieve.rajewski@tufts.edu.

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PROVIDING THE MEANS FOR EXCELLENCE

On the cover: Number 15, the first live oiled sea turtle found off the Louisiana coast, awaits release to the wild at the Audubon Aquarium of the Americas in New Orleans. Photograph by Alonso Nichols
Back cover photograph by Alonso Nichols
Collaboration Is Our Way of Life

IN HIS 2002 INAUGURAL ADDRESS, PRESIDENT LAWRENCE S. BACOW posed this question: “What will be the unique contribution of Tufts’ to solving global challenges? His answer included “teaching collaboration as a way of life—and a source of answers.” In support of that point he added an example that imagined collaboration among faculty from three Tufts schools: the Fletcher School of Law and Diplomacy, the Friedman School of Nutrition Science and Policy and our own veterinary school. He asked, “What problem might draw faculty from these three schools together?”

Indeed those three schools did collaborate and, as was celebrated in the October 22, 2010, issue of the journal Science, the effort culminated in the global eradication of the deadly cattle plague known as rinderpest. The work of then veterinary school faculty member Jeff Mariner, V87, and his colleagues led to the development of an improved vaccine that could be transported without refrigeration and administered by herdsmen in the most remote locations. The Food and Agriculture Organization (FAO) announced the success of the 16-year eradication effort in October and declared that rinderpest had joined smallpox as one of only two diseases eliminated from the planet.

Next summer we will welcome Anthony Monaco to Tufts as our 13th president. A physician and a scientist, he will build on the shared vision of collaboration as a way of life, especially in the life sciences. Dr. Monaco returns to Boston, where he trained, from the University of Oxford in the U.K., where he has built a career as an international leader in the search for genes involved in complex neurodevelopmental disorders such as autism and dyslexia. His career began at Harvard with the landmark discovery of the gene responsible for X-linked Duchenne and Becker muscular dystrophy. He has served as director of Oxford’s Wellcome Trust Centre for Human Genetics and, since 2007, has held the position of pro-vice-chancellor for planning and resources at Oxford. I encourage you to read more about Dr. Monaco at go.tufts.edu/presidentelect.

In June we will welcome another important new face, this time to the Cummings School. Dr. Nick Frank, currently at the University of Tennessee, will join us as the new chair of the Department of Clinical Sciences. Dr. Frank is an award-winning teacher and has excelled as a clinician-scholar in the field of equine internal medicine and endocrinology. He has special research interests in obesity, metabolic syndrome, endotoxemia and laminitis in horses.

Collaboration as a pathway to answers will remain a priority for the Cummings School as we welcome these new leaders to our community. As you will read about in this issue, our students, faculty and staff continue to extend the reach of veterinary medicine and embrace cross-disciplinary partnerships within Tufts, across ecosystems and around the globe.

All the best,

DEBORAH TURNER KOCEVAR, D.V.M., PH.D.
DEAN AND HENRY AND LOIS FOSTER PROFESSOR
Ninety-five thousand dogs roam the streets of Kathmandu, Nepal. Equal to one-tenth the human population in that city, that number only grazes the surface of a growing public health threat in South Asia, according to the World Health Organization.

The canine strain of rabies, a brain infection transmitted by a virus in the saliva of infected dogs, has been eradicated in the United States. But the disease kills more than 100 people each year in Nepal, which is among the poorest and least-developed countries on the planet. In India and Nepal, canine rabies accounts for more than 50 percent of all human deaths from the disease in the world, according to Veterinarians Without Borders.

“In the United States, our perspective is limited, due mainly to the fact that the canine strain of rabies was eliminated in 2007, after a successful campaign encouraging people to vaccinate, spay and neuter their pets,” says Gretchen Kaufman, J76, V86, director of the Center for Conservation Medicine at the Cummings School of Veterinary Medicine. But in many countries, rabies “is still a really big deal,” says Kaufman, who has been working since 2001 to eliminate the disease in Nepal.

In Kathmandu, the Nepalese capital, there are dogs that have owners and others that Kaufman calls “community dogs,” which are fed by kind-hearted residents.

“No one takes direct responsibility for these dogs, enough to be willing to pay for things such as vet bills,” Kaufman says.
Complicating the problem, she says, is that the dogs that have owners “mix it up with the community dogs,” heightening the potential for the transmission of rabies.

In the United States, wildlife veterinarians at the Cummings School have used oral vaccine baits to control rabies in wild animals such as raccoons, including a 15-year campaign that temporarily prevented the disease from hopping the canal that separates Cape Cod from the Massachusetts mainland.

When Kaufman’s student, Leslie Bienen, V01, approached her about doing a rabies control project in Nepal, Kaufman thought the oral baits might help control the disease in the feral dogs in Kathmandu.

COMMUNITY EDUCATION
Veterinarians in Nepal primarily focus on livestock, which is the case in most developing countries because those animals feed people, Kaufman says. The Nepalese veterinary students were not being taught spay or neuter procedures, which involve major surgery.

Since her first visit to Kathmandu in 2001, Kaufman says she and her students have been working with government and humane organizations to raise awareness about the importance of controlling rabies. They also have helped augment training in the spay and neuter program at the government-run veterinary school. The training is based on the Cummings School curriculum, in which each student performs four or five surgical sterilizations before graduating.

More recently, Kaufman and Mehnaz Chumkee Aziz, V12, who spent time in Nepal in summer 2009, investigated the possibility of sterilizing the feral dogs without surgery, instead using a pill or injection. “As soon as the drug companies have something safe and viable, Nepal would be a great location to try” non-surgical sterilization, Kaufman says. “It’s really something that is going to change the world in terms of rabies outbreaks and dog welfare.”

In Nepal, where the World Bank puts the average income at $340 a year, “the cost of surgically sterilizing a dog is huge,” Kaufman says—roughly $20 an animal. “We are looking for something that will cost less than two dollars.”

Implementing a large-scale canine sterilization program will be a challenge, Aziz says. “There were so many people who told me that they didn’t know that you could spay or neuter an animal,” she says. “They either didn’t know that animal health professionals existed, or the cost was too much, or they couldn’t get to a clinic where the procedure is performed. There was a definite lack of public awareness.”

Aziz also learned that charlatan practices have made some Nepalese suspicious of non-surgical sterilization. “In certain parts of Kathmandu, people who aren’t veterinarians have been giving dogs Depo-Provera,” a short-term contraceptive approved for use in humans, to render animals temporarily sterile, she says. Many of the dogs suffered uterine infections, which required surgery, and some of them died.

Back at the Cummings School, rabies awareness took center stage this fall, when students and faculty hosted the 2010 Merial World Rabies Day Symposium, an honor accorded the student chapter of the American Veterinary Medical Association with the largest attendance at the previous year’s forum.

Past symposiums have been very North American-based, Kaufman says, but this year organizers extended their reach to countries including Thailand, Nepal, Africa and Iraq, where veterinary students submitted YouTube videos to showcase their work from afar. “Rabies is not a new sexy disease,” Kaufman says. “One thing that we have struggled with is that some of these older diseases that haven’t been conquered don’t get very much funding. But it is a very serious concern, and there is still a lot of work to be done around the world.”

Kaitlin Provencher, a staff writer in Tufts’ Office of Web Communications, can be reached at kaitlin.provencher@tufts.edu.

OVERHEARD

“There is a condition in dogs which is almost precisely the same, if not precisely the same, as post-traumatic stress disorder in humans.”

—NICHOLAS DODMAN, HEAD OF THE CUMMINGS SCHOOL’S ANIMAL BEHAVIOR PROGRAM, IN A LOS ANGELES TIMES STORY ABOUT A BOMB-SNIFFING AIR FORCE DOG THAT SUFFERED FROM PTSD FOLLOWING DEPLOYMENT TO IRAQ

PHOTO: COURTESY OF MEHNAZ CHUMKEE AZIZ
Bone Up on Dog Safety

Broken bones are painful for our canine companions and can be costly for pet owners, especially if surgery is required to mend them.

Unsurprisingly, the leading cause of broken bones in dogs is being hit by a car. However, the second most common cause is when dogs jump or fall off furniture—especially for small dogs, whose tiny bones are just not built to withstand the force of such an impact.

Car accidents and falling each account for 40 percent of the 500 broken-bone insurance claims reported by Veterinary Pet Insurance in 2008. Other common causes of broken bones were dogs fighting with another animal; running and slipping; accidentally being hit with an object; getting caught in or running into objects; getting stepped on; and sustaining injuries while a passenger in a car accident.

A few simple precautions can help keep your dog injury-free.

Always leash your dog when outside your own fenced yard. This not only avoids car-impact injuries and run-ins with other animals but also is required by many municipalities’ leash laws.

To prevent broken bones from jumps and falls, lift small dogs onto and off furniture. Or train your dog to use ramps or steps to get up and down from high sofas, chairs and beds. —Betty Liddick

Betty Liddick is the editor of Your Dog: The Newsletter for Caring Dog Owners, published by the Cummings School of Veterinary Medicine. This article is adapted with permission. For subscription information, go to www.tuftswourdog.com or call 1.800.829.5116.

World Class

Tufts University is one of the top 100 universities in the world, according to the Times of London, ranking 53rd on a list of 200 colleges and universities. The survey, which was a 10-month undertaking, was published on September 16 in the Times Higher Education Supplement.

The rankings focused on five areas: teaching, which was worth 30 percent of the score; research, also worth 30 percent; research influence, 32.5 percent; innovation, 2.5 percent; and international mix of staff and students, 5 percent.

According to the Times, the methodology to determine the rankings was established after lengthy consultation with experts in global higher education. The survey was “the most comprehensive and sophisticated exercise ever undertaken to provide transparent, rigorous and genuinely meaningful global performance comparisons,” it said.

The survey ranked Tufts higher than Brown University (55th), Boston University (59th) and Dartmouth (99th). Harvard was first, the California Institute of Technology was second and MIT was third. The highest-ranked universities outside the United States were the University of Cambridge and Oxford University, which tied for sixth. Tufts ranks 33rd for North American institutions, including those in Canada.
As the eat-local movement grows, newbie farmers head to school to learn their ABCs.
“First, you grab them here and here,” Brundage instructs, gently taking a ewe’s chin in his left hand, while wrapping his other arm around her side to grip her belly. “Now position your right knee against her side. Turn her head away from you until she is really leaning into your right leg. Now take that leg away!”

The sheep topples onto her side, where she remains, quite calmly. Brundage bends over, grabs the ewe’s front legs and pulls her back until she is resting on her haunches between his knees. “From this position, you can trim the hooves,” says Brundage, showing the students how to wield their clippers.

After a few attempts that result in the sheep circling around him, Patrick McQuade, a registered nurse from Rutland, Mass., gets tipping down pat. McQuade discovered Sheep School while surfing for information on how to care for some Wensleydale lambs he had purchased. “You can only read so much on the Internet,” he says. “Nothing beats hands-on instruction from actual professionals.” McQuade decided to raise lamb after seeing Food Inc., a documentary about corporate farming. “I figured, at least this way, I’d know that the animals I eat were well cared for,” he says. “I only work three days a week, so I have time to try farming on the side. So far, I love it.”

As the eat-local movement inspires people to think long and hard about where their food comes from, more folks are turning to raising their own meat and eggs. These backyard farmers usually start off knowing next to nothing about animal husbandry—which is why, for the last two years, the Cummings School has offered the field schools through the New Entry Sustainable Farming Project, a nonprofit training program for newbie farmers run by the Friedman School of Nutrition Science and Policy at Tufts. New Entry also partners with Community Teamwork, a nonprofit in Lowell, Mass., that helps low-income people become self-sufficient.

**SHEEP SENSE**

Sheep tipping works because the animals possess natural defense mechanisms against predators. “She is feeling pretty good right now,” says George Saperstein, professor and chair of environmental and population health, of the tipped sheep. “When sheep are taken down by a prey animal like a wolf, their brains release endorphins so they will have a pain-free death.”

However, those same instincts often make it difficult for novice farmers to judge a sheep’s well-being. Standing out from the herd, say by looking lethargic or thin, attracts the unwanted attention of predators. So sheep evolved to blend in by not betraying any signs of discomfort or disease.

Consider, for example, the barber pole worm. This microscopic stomach parasite can drain a sheep of a deadly amount of blood before causing any overt symptoms, even as the animal suffers from severe
More than ever, consumers want to know where their food comes from. “As a result, more people want to raise food animals for themselves, which is great—as long as they do their homework first,” says Garth Miller, the livestock production manager at the Cummings School. If you’re thinking about keeping livestock, our experts offer a few pointers:

Know your local laws. Regulations around raising livestock in Massachusetts vary by town. Check with your city or town hall to make sure your property is in the right zoning district and you have enough land to keep animals. Some towns also require you to purchase a permit. Every municipality has a health inspector who conducts an annual census of all livestock in that community; those records are submitted as “barn books” to the state Department of Agricultural Resources. The barn books are used to contact owners if there is a disease outbreak that could threaten livestock.

Think about your neighbors. While keeping livestock may appeal to you, your neighbors may have other ideas. Consideration and common sense are key to avoiding conflicts. “If you want to raise chickens in a populated area, stick to hens since they’re a lot quieter than roosters,” says Samuel Anderson, G09, the livestock and outreach coordinator for the New Entry Sustainable Farming Project, a program run by the Friedman School of Nutrition at Tufts. “Fencing is also key,” he says. “I grew up in a very rural area, and when a neighbor neglected their fences, we would find a herd of cattle in our front yard. I can only imagine how that would go over in the suburbs!”

Invest in good stock. “The most important step in keeping livestock is buying an animal from a reputable breeder,” says James Phillips, the Cummings School’s farm supervisor. Although auctions offer an enticingly inexpensive way to get started, the experts agree that finding a quality animal at auction is rare—and difficult for a novice to spot. Remember: once you bring an animal into your herd or flock, you’re stuck with whatever genetics, disease, disposition or other issues that come with it.

Plan for predators. Five laying hens produce enough eggs to feed a family, and you may love the idea of letting the birds roam in your backyard. But chickens need secure fencing and coops to protect them from a host of predators that prowl the suburbs (and even cities), including fisher cats, raccoons, skunks, hawks and owls. For those who keep sheep, fencing alone won’t always keep out dogs and coyotes, so consider adding a guard dog, a llama or a donkey to your herd, all of which can drive off canine intruders.

Add it up. Raising animals for meat, dairy or eggs entails a financial commitment. You have to purchase healthy stock and pay for feed, veterinary care, fencing and housing. Then there are the fees for processing food animals: $40 or $50 for an 80-pound lamb and $500 for a 1,200-pound steer, says Cummings farm worker Katlyn Tice. And don’t forget about your own time. “Livestock is not much fun to have around on a Sunday morning when it’s zero degrees outside and you have to go break ice in water buckets,” says Scott Brundage, a herdsman at the Cummings School. “Livestock require attention every day.”
looking into it because they are getting so many requests from interested residents.”

From 2005 to 2008, the state saw the number of properties with 12 or fewer chickens grow by 300 households, and the total number of chickens statewide jump from 7,000 to 9,000 birds.

The state has yet to notice an increase in the number of people raising other livestock, including pigs, cattle and sheep. But, Cahill says, “We recognize poultry as being a gateway species. The people who were ahead of the curve and keeping poultry years ago may now be moving into sheep, goats and other production animals. We certainly have heard from more people who are interested in learning how to butcher four-legged animals for personal consumption, and they may already be raising meat animals.”

Although Americans eat just a quarter of the lamb they consumed in the 1950s, according to the U.S. Department of Agriculture, sheep might be the livestock animal best-suited for a revival in Massachusetts. “Back in the 1800s, [sure-footed] sheep were the most predominant animal in New England because of the rocky terrain,” says Saperstein. “Just look at all the towns that sprung up around textile mills here.”

More obstacles stand in the way of backyard swine farming, as many towns have specific rules banning that species, notes Cahill.

OFF ON THE RIGHT HOOF
The New Entry Sustainable Farming Project (nesfp.nutrition.tufts.edu) initially focused on vegetable production, but “over the years, more and more people told us they were interested in raising livestock,” says Jennifer Hashley, G05, the program’s director.

After searching for other organizations offering startup training in livestock production, Hashley discovered that such educational opportunities did not exist in Massachusetts and were rare elsewhere in New England. She decided to add a meat-production component to the New Entry program and soon identified the Cummings School as the ideal partner.

“The veterinary school obviously lends itself very well to hands-on learning, as it already has livestock on the property, as well as knowledgeable faculty and staff,” Hashley says. “We also wanted to help beginner farmers make connections to veterinary care services and understand when it’s appropriate to bring in a vet,” says Hashley, who raises chickens, pigs, sheep and rabbits in Concord, Mass., with her husband, Peter Lowy.

Saperstein says that getting farmers started off on the right foot with animal care is the veterinary school’s primary motivation for offering the livestock schools. “For the last 30 years or so, there hasn’t been enough basic information about raising livestock available for new farmers,” he says. “So when I was a practicing farm veterinarian, it was not uncommon to see animals with serious man-made health problems because their owners had little idea what to feed them to meet their nutritional needs or how to properly vaccinate or de-worm them.”

The secondary focus of the field schools is on helping farmers achieve financial sustainability. For starters, local farmers need to learn how “to go back to using the grass that we have” to feed their livestock, says Saperstein. “The biggest cost to a meat producer is feed, and New England has the highest grain costs in the country because it has to travel so far to us,” he explains. “Using grass more efficiently is the first step toward economic viability for our farmers.”

Ten classes have been offered so far through the Livestock Field School series, which has received funding from the U.S. Department of Agriculture to offer the workshops. Classes have covered preventive care, handling, nutrition, feeding, breed selection and reproduction for chickens, cows, pigs and sheep. Other workshops have tackled pasture management, rotational grazing, fencing, direct-market opportunities and meat processing. In addition to faculty and staff from Tufts, workshops have tapped industry experts, including breeders, chefs, representatives from the USDA and its Natural Resources Conservation Service, and extension service staff from the University of Massachusetts in Amherst, Penn State University and the University of Connecticut.

To date, 372 would-be farmers from all over the Northeast have attended a Livestock Field School.
Jana Dengler, the director of facilities and security at Boston’s Institute of Contemporary Art, and Maryanne Reynolds, an assistant attorney general for the Commonwealth, have gone to field schools on poultry, swine, cattle, pasture management and direct marketing since purchasing their home with 110 acres in Petersham, Mass., last May. The married couple has 12 cashmere goats and two dogs to protect their livestock. They hope to add yaks to the mix this winter and plan to someday venture into raising poultry for eggs, meat and breeding stock.

The livestock schools “are great foundation classes,” says Dengler, who ran a farm for four years in her 20s. “You come away with a good understanding of what the animals are like and their care and feeding requirements, as well as how to find a market for your product before you go ahead and invest money in buying 200 chickens. Not too many people have been raised on farms anymore, and the classes are especially good at getting people who have never handled an animal before comfortable with it.”

“Because we both work full-time off-farm, time is a precious resource,” says Reynolds, who appreciates networking with other attendees, who often have valuable experiences and information to share.

While New Entry stands ready to help those who choose to move forward with raising livestock after participating in a field school, sometimes success means preventing people from jumping in over their heads.

Peter Kracke, E05, E08, a chemical engineering research scientist, attended Sheep School on a fact-finding mission. His family is exploring options for inexpensively mowing pasture they own in northern New Hampshire, and at first, sheep seemed a sound strategy, especially given the potential income stream from raising lamb. However, because of what he learned in Sheep School, Kracke has revised that game plan: “Sheep School, though a lot of fun, helped me figure out that it’s not feasible for us to raise meat animals [ourselves].”

However, the experience did not dampen his desire to use the land for agriculture. Kracke says he is working on convincing his family to apply to the New Entry Farmland Matching Service as landowners seeking farmers.

Genevieve Rajewski, the editor of this magazine, can be reached at genevieve.rajewski@tufts.edu.

BRED WINNERS

THE TUFTS FARM TEAM KNOWS A THING OR two about quality livestock. Two of the veterinary school’s cows won prizes this fall at the largest fair in Worcester County.

Maybelline, a nine-month-old Simmental/Charolais heifer that was bred and raised on the Grafton campus, was chosen as Champion Beef Cross at the Spencer Fair Beef Show. Not to be outdone, Whimsical, a 20-month-old purebred Simmental heifer that was purchased as a calf from Simme Valley in New York, was crowned champion in the All Other Breeds class and took home the show’s top award: the Supreme Champion Trophy for the best beef heifer. Whimsical bested 65 other bovine competitors for the title.

Cummings School herdsman Scott Brundage has been entering animals in beef cattle shows for 15 years because, he says, it’s a great way to showcase the skills of Tufts’ veterinary students. “The best part of showing cattle is what it does for [the school’s] reputation among the other exhibitors in the barn,” Brundage says. “Some shows have as many as 160 head, and when those farmers and herdsmen see our students comfortable and confidently working cows, they realize that Tufts turns out great cattle vets. Some vets may know how to fix a cow, but a great vet knows what makes one tick, too.”

Farm worker Katlyn Tice helped show Tufts’ cattle at the Spencer Fair and also put on two demonstrations for the 4-H youth groups there. Tice joined Tufts this past summer, after graduating from Penn State, where she competed nationally on the university’s livestock show team.

Brundage praises Tice’s skill at fitting, which is grooming cattle to show off their build versus the breed standard. “Fitting is an art. It really takes a certain eye and a good hand with a set of clippers. See how her hair looks like crushed velvet?” says Brundage, pointing to Maybelline. “And look how straight the line of her back is.”

The two prize-winning cows will remain at Tufts to pass on their fine genes. Whimsical is due to calve in February, and Maybelline will be bred to calve during the spring of ’11.
When the eight-month-old puppy arrived at the Cummings School, he wasn’t bouncing around the waiting room like most healthy pups do. The dog was limping and began having seizures. Working with surgeons and critical care specialists, Dana Hutchinson, a resident in veterinary clinical nutrition, also discovered the pooch had low bone density.

Intending to feed the pup a healthy diet to help control episodes of diarrhea, the dog’s devoted owner had been giving him home-cooked meals of hamburger and rice, broccoli, eggshells and vitamin supplements. But the diet, like most homemade ones, wasn’t balanced, and the dog had become severely calcium deficient, probably getting 25 percent of what a growing pooch needs. The diet also lacked myriad other nutrients.

“The owner had no idea. She thought she was doing the right thing,” says Hutchinson.

If we’re confused about our own nutrition—and the stunning array of foods, supplements, nutrition books and websites suggests that we are—we’re even more uncertain about what to feed our canine and feline companions. The obesity epidemic that is affecting human health has spread to our pets, which like many of us, are eating more and exercising less. And as Americans increasingly choose local, organic and unprocessed foods for their own tables, some animal owners have become wary of mass-produced pet foods and are looking for other options.

So what’s a conscientious pet owner to do? Veterinarians working in a relatively new specialty, veterinary clinical nutrition, are helping provide owners and other clinicians with science-based advice about diets that will keep their pets healthy and fit. The Nutrition Service at Tufts’ Foster Hospital for Small Animals, led by Lisa Freeman, a Tufts-educated veterinarian with a Ph.D. from the Friedman School of Nutrition Science and Policy at Tufts, and the residents she has trained have done some groundbreaking work on the role of nutrition in preventing and treating disease in animals.

Nutritionists in veterinary medicine once focused almost exclusively on what to feed production animals to get the most milk out of a cow or the most meat from a pig. Today they’re more like human nutritionists, determining the optimal caloric and nutritional requirements for specific breeds of cats and dogs at all stages of life. They’re also using nutrition to treat a range of chronic conditions, including heart and kidney disease, cancer and obesity.

Battle of the Bulge

Your cat never has to fit into a pair of designer jeans, but that doesn’t mean you don’t have to count his calories. Obesity carries many of the same health risks for companion animals as it does for humans: diabetes, arthritis and potentially, a shortened lifespan. Research in the United States and the United Kingdom puts 25 to 40 percent of middle-aged cats and dogs in the overweight or obese category. Some scientists say the rate is even higher: a recent Cummings School study found that 70 percent of otherwise-healthy cats were overweight or obese. Considering these statistics, it’s pretty likely your animal is overweight or obese.

Don’t think so? That might be part of the problem. Veterinary nutritionists suspect that in wealthier countries like the United States, where the economy is growing, the chances are higher that the pet owner is feeding too much of the wrong food to their pet.
States, we may have forgotten what a healthy animal should look like. A body condition scale—an illustrated guide that places cats and dogs on a spectrum of one to nine, from “emaciated” at one end to “grossly obese” at the other—is one method for assessing your pet’s body condition.

However, Freeman says, there’s an even easier weight reality check. Hold your hand out, palm up. Feel your palm just below your fingers. If that feels something like the side of your dog or cat, your pet needs to shed some pounds. Now flip your hand over and make a fist. Run your other hand along your knuckles. A dog or cat whose ribs feel like that is too thin. Finally, hold out your open hand, palm down, and feel those knuckles again. That’s what a fit pet feels like. If you’re not sure how your pet measures up, consult your veterinarian.

Our dogs and cats don’t go to restaurants or make impulse junk-food purchases at the supermarket, so how did they get so pudgy? Like us, animals today expend less energy than their ancestors did, and they’re spending more time indoors, with ready access to food. But some of the reasons our pets are plump are unique to them. “We’ve really gotten good in veterinary medicine at advocating neutering,” says Kathryn E. Michel, V83, an associate professor of nutrition at the University of Pennsylvania School of Veterinary Medicine. “But neutering does increase the risk of weight gain,” she adds.

And thanks to the pet food industry’s extensive taste tests, dog and cat food is yummier than ever, prompting pets to keep nibbling kibble even after their hunger is satiated. “Ten years ago, dogs used to stop eating when they were full,” says Freeman, J86, V91, N96. “Now dog food tastes really good, so pets often continue eating even after they’re full.”

For a more insidious reason behind pet obesity, take a look at pet treats, “the fastest-growing segment of the pet food industry,” says Hutchinson. Shaped like bones or fire hydrants, fish or mice, pet treats appeal to the human shopper, but can pack a caloric punch many owners don’t even realize.

“Often, people are feeding their pets the right amount of food [at mealtime], but the pets are just getting too many extras,” says Michel.

Given that a cat or a small 10-pound dog needs as few as 250 calories a day, even a couple of extra treats can pack on pounds. “A treat may seem small to us,” says Freeman, “but if you think about the calories, it might be a big percentage [of a pet’s daily caloric requirement]. It might be like us eating a Big Mac.”

Dog biscuits range from 5 to more than 300 calories, and some “dental bones” contain more than 1,000 calories. Even rawhide strips can have a hefty number of calories. A general rule is that owners should aim for treats to comprise 10 percent or less of a pet’s daily caloric intake. For a small dog or cat, that means limiting treats (and table food) to less than 25 calories each day.

In theory, it should be easy for owners to restrict their pets’ calories and encourage more activity. In practice, however, it can be just as difficult for pets to shed weight as it can be for the people who own them. More often than not, it’s the humans who need to change their ways.

“More and more pets are viewed as members of the family, so when you have that orientation, you are predisposed to indulge the pet,” says Michel. On top of that, owners tend to misinterpret their pets’ behavior around treats, especially dogs, which can appear incredibly ravenous at mealtime. “Pets beg, regardless of being hungry,” says Debbie Linder, V09, a resident in veterinary clinical nutrition at the Cummings School. “They develop patterns, and they train us.”

With a little sleuthing, a veterinary nutritionist can help pet owners break bad habits—like doling out too many treats or leaving out too much food. Then for pets that still don’t drop the weight, the Cummings Nutrition Service offers consultation on site, or via phone or email, to develop more effective dietary plans and then monitor an animal’s weight. That’s especially important for cats, which can wind up with a serious liver problem if they lose too much too fast, notes Freeman. “If the cat or dog hasn’t lost weight, we have to make adjustments and keep making adjustments until it works.”

The owner education component is essential for reversing the obesity trend and maintaining a healthy animal. “Pet owners are more interested in nutrition now, yet often their vet may not be able to answer their questions because they didn’t receive the training in school,” says Freeman, who is one of about 70 veterinarians in the country to earn board certification in nutrition. Less than half of the 28 U.S. veterinary schools have a nutritionist on the faculty. Come January, the Cummings School will have two teaching students, conducting research and advising pet owners.

**FIT FOR LIFE**

So how do you get your cat off the couch? One strategy for blending exercise with portion control is to put your pet’s entire meal inside a treat ball, or hide portions of his meal all over the house. For very food-motivated animals, try opening a can of wet food, then walking up and down a flight of stairs and having your pet follow you. Take your dog for an extra walk around the block or trick your cat into getting exercise with toys like lasers and feathers.

But don’t rely too much on exercise to trim the tabby down. “It’s important to realize that if a cat needs to lose weight, you’re not going to get that loss just from exercise,” says Hutchinson. “Exercise is great. It helps increase lean body mass. But to actually lose weight, you have to restrict calories.”

One of the toughest things about getting your pet into shape is figuring out your animal’s daily nutritional and caloric requirements. All pet food labels have to contain feeding directions, but some are more accurate than others, Freeman says. Feeding directions are just a starting point. The real
test is what your pet looks like. If you can easily feel the ribs, without pushing hard, then you're feeding the right amount. If you have to push hard to feel the ribs—or you can’t feel them at all—you’re feeding too much, Freeman says.

Some, but not all, pet food manufacturers list the calories on the package, although that’s only required for foods labeled as “light,” “low calorie” or “reduced calorie,” says Freeman. If your brand doesn’t list the calories, look for that information on the company’s website or by calling or writing the manufacturer.

Even foods labeled as light or marketed for weight control can vary tremendously in calories. “You may buy a pet food that is marketed as a weight-loss diet, and it may have twice as many calories [as another brand],” says Linder.

In a study published in the January 1, 2010, issue of the Journal of the American Veterinary Medical Association, Freeman and Linder examined 93 commercial dog and cat foods marketed as weight-management diets. They found that dry dog foods ranged from 217 to 440 calories per cup and also varied wildly in price—from 4 cents to more than $1.10 per 100 calories. The study also concluded that “the vast majority of foods’ directions would result in no weight loss or even weight gain,” says Freeman.

DECRYPTING THE LABEL

Whether your pet is overweight or in perfect shape, there are several things to consider in selecting the best food for your animal.

Pet foods are regulated by the Food and Drug Administration, the U.S. Department of Agriculture and the individual state departments of agriculture. But it is the Association of American Feed Control Officials (AAFCO) that provides guidelines for the manufacture, labeling and sale of pet foods, with the goal of ensuring safe and nutritious diets. The AAFCO also sets standards for the levels of nutrients that should be in dog and cat foods for the different stages of life, from puppies and kittens through old age.

Veterinary nutritionists generally agree that owners should look for foods that are tested using AAFCO feeding trials—rather than by formulation—to meet the minimum AAFCO levels. You can tell how the food was tested, Freeman says, by looking for the nutritional adequacy statement that is required on all pet food labels. “This is the most useful piece of information on the label,” Freeman says, because it provides answers to three critical questions:

- Is the food complete and balanced?
- For which stage of a pet’s life is the food intended?
- How are the claims on the label substantiated?

Pet foods, Freeman says, are designed to meet the minimums for one of the recognized life stages: growth and reproduction or adult maintenance. Owners should be aware that the life stage a food is marketed for may not necessarily be the same stage for which the food actually meets the minimums, she says. For example, many diets marketed for adult cats actually meet the requirements for all stages of life, meaning their nutrient levels are high enough for kittens or lactating queens. By checking the nutritional adequacy statement on the label, you can select the food that is most appropriate for your pet’s stage of life.

A pet food intended as a complete and balanced diet must be substantiated in one of two ways: by formulation to meet the levels established by the AAFCO or through feeding trials. Feeding trials, Freeman says, provide better assurance that the food meets your pet’s nutritional requirements. When feeding trials have been done, the label should read: “Animal feeding tests using AAFCO procedures substantiate that Brand X provides complete and balanced nutrition for growth (or maintenance).”

If the food is only formulated to meet requirements, the label has to say: “Brand Y is formulated to meet the minimum levels established by the AAFCO Dog (or Cat) Food Nutrient Profiles…”

Other information on pet food labels is more about advertising than nutrition, Freeman says. While there are guidelines governing the use of the word “natural,” meaning the food does not contain chemically synthesized ingredients, descriptive language such as “holistic,” “organic,” “gourmet” and “human grade” are primarily marketing terms, she says.

Yet another reason for pet owners’ heightened interest in what their pets eat may be a result of the pet food recalls of 2007, when several major companies issued voluntary recalls for hundreds of brands. Something in the food was causing kidney failure in otherwise-healthy animals, primarily cats.

Investigators from the veterinary school at Cornell University, New York State and the U.S. Food and Drug Administration found that the food contained the toxic industrial resin melamine, the same substance that killed six and sickened 300,000 children in China in 2008, after they drank milk tainted with it. In the case of the poisoned pet food, a Chinese supplier had intentionally and illegally spiked wheat gluten, a protein used in most commercial pet foods, to boost its apparent protein content. The recalls prompted many pet owners to rethink what they were feeding their animals.

Some started buying foods made by smaller companies with more familiar-sounding ingredients. But those brands may not be all they claim, says Kathryn Michel. “Often alternative pet foods are made by commercial manufacturers and just marketed as alternative,” she notes.

Other pet owners turned to preparing homemade meals for their animals. It can be done, Freeman says, but owners should consult a veterinary nutritionist before deciding to cook for their pets. “Unless they’ve been formulated by a veterinary nutritionist,” Freeman says, “almost all of the homemade diets I see owners feeding are very nutritionally unbalanced.” Even a tiny change “can easily make a balanced diet unbalanced,” says Dana Hutchinson, noting that “just substituting white for brown rice can completely alter the diet.”

And while human nutritionists extol the virtues of fresh foods and home-cooked meals to avoid the high salt and fat content in processed foods, when it comes to your pet, “it’s not better to cook for them,” Freeman says. “It can be done, but in many ways it’s probably less desirable. People are often surprised to hear that. They say, ‘In that case, I’d rather open a can.’”

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ON A SUNNY MORNING IN MID-AUGUST, ABOUT 50 MILES FROM THE SOURCE OF THE *Deepwater Horizon* oil spill, a fishing boat commandeered for wildlife rescue edged up to a small island in Louisiana’s shallow Barataria Bay. Although the well had stopped spewing weeks earlier, the boat’s motor still churned up oil, which appeared as gray wisps on the surface.

“The boom has washed up on shore there,” said Tom MacKenzie, a guide with the U.S. Fish and Wildlife Service, pointing to the spongy, oil-absorbing tube that hung on the island’s low mangrove trees like a dirty garland. But the most recent orders were not to step on the island, either to reposition the boom or to look for oil-contaminated wildlife, and it was easy to see why. “They are still nesting,” MacKenzie said of the hundreds of brown pelicans that blanketed the island, many of them tending eggs or young hidden in the vegetation. Tramping in there could do more harm than good.
None of them was covered in gunk, like the birds they rescued in early June, but MacKenzie was still worried. They had recently been pulling in lightly oiled birds that had probably been that way for weeks. Even a little oil on the belly can thwart a pelican’s waterproofing, deterring it from going into the water, and therefore from hunting and eating. Dehydration and starvation set in, and with the compulsion to preen, the bird swallows the oil, traumatizing its intestines, liver, kidneys and nervous system.

Florina Tseng had warned about this. “Usually it’s the more heavily oiled birds that are found first and get into rehab,” said Tseng, director of the Wildlife Clinic at the Cummings School of Veterinary Medicine at Tufts, who was preparing to spend a week in Louisiana treating oiled wildlife. The lightly oiled birds still suffer, “but they are harder to catch, so by the time they come in, sometimes they are in worse shape,” she said.

Tseng, an unflappable presence in any veterinary emergency, is an oiled wildlife expert, and it went without saying that she would join the waves of veterinarians and wildlife biologists who converged on the Gulf area after the drilling rig explosion in April. She has studied the myriad ways, fast and slow, that crude, diesel, jet fuel and gasoline can injure wildlife. There have been plenty of opportunities. Animals are so frequently caught up in these wholly unnatural disasters that a veterinary specialty has emerged to deal with it. It is far more than just setting up sinks and hoses. With each spill, these professionals learn a little more about the best way to treat animals trapped in our gooey messes.

“The ethical argument is we all use petroleum products, and so we’re all responsible for this spill, too,” Tseng said. “We owe it to these birds to care for them and, hopefully, give them a second chance.”

When Christine Fiorello, V95, first told friends she was taking a job as a veterinarian with the Oiled Wildlife Care Network, a California group that organizes spill response, they were surprised. “They said, ‘Are there really that many oil spills in the world that there need to be vets who do only that?’ ” she said. “Sadly, there are.”

Oil gets into the environment with disturbing regularity, through broken pipelines, tankers that run aground, drilling platforms that leak, accidents that happen during transfer of oil between tankers, and ships that illegally dump their oily bilge water. There are also the natural seeps from the ocean floor, “mystery spills” where the source is never identified, and the downright bizarre, such as a cargo container holding six thousand gallons of olive oil that started leaking into a storm drain in the city of San Leandro, on San Francisco Bay. Not every spill threatens wildlife. In 2007, some 8,000 spills were reported in California, and the Oiled Wildlife Care Network responded to seven (including the olive oil).

“Certainly several times a year there is something going on,” Fiorello said, noting a recent pipeline break in Utah that sent 500 barrels of oil into a Salt Lake City creek and another that poured a million gallons into a Lake Michigan tributary. Even the small spills are an opportunity for improving procedures that can save animal lives in a catastrophe like the BP spill in the Gulf. And between disasters, Fiorello and her colleagues train volunteers who must learn the protocol before a spill happens.

In Louisiana, the bird rehabilitation ended up at a converted lumberyard in

Pelicans roost on the boom laid to protect fragile marshland in Louisiana’s Barataria Bay. Opposite page: Volunteers rinse a pelican at the Hammond Wildlife Rehabilitation Center.
Hammond, a city not far from the Gulf of Mexico, but far enough not to be disrupted by the hurricane season. Stalls for stacking two-by-fours became sick bays for triaging birds in various states of unwash. Twenty-five-foot plywood pens were built to house more than 300 pelicans, terns, spoonbills, gulls, gannets and rails.

Years ago, oiled birds would have been rushed into a sink on arrival at a rehab center like this. But veterinarians discovered that birds survive better when they are monitored for a few days first. It’s a matter of treating them for dehydration, hypothermia and anemia before they undergo the stress of washing, Fiorello said. Although the team at the Hammond center supplied every comfort, from live minnows in pools of running water for the pelicans to tree branches for the shy egrets and herons, the veterinarians were under no illusion that the birds enjoyed their time there.

“It’s terrifying,” said Fiorello. “It’s like being surrounded by giant, scary, primate predators,” many of them wearing goggles or Tyvek suits or rubber gloves duct-taped to their sleeves to protect themselves from the oil.

While it’s no day at the spa, the care is state of the art. In previous spills, rescued birds died by the hundreds from a respiratory infection called aspergillosis. It’s still a problem, but less so now that the veterinarians give each bird a prophylactic dose of antifungal medication and carefully monitor the ventilation in the cages.

Loons, sea ducks and other marine animals that spend most of their lives in the air or floating on the water are housed in net-bottomed cages to prevent the sores that develop from sitting on solid ground. Some birds get special U-shaped pillows to rest on.

Even the washing protocol has been carefully studied. Rinsing, for example, can be trickier than soaping. To get the detergent out, the water can’t be too hard or too soft; the temperature should be 104 to 105 degrees, and the Spa 2000 is the showerhead of choice for getting the pressure just so.

“If you’re doing it right, he’ll be completely soaked and then the feathers will start looking dry and water will start beading off,” Tseng said. That’s the signal that one of the miracles of nature, the interlocking barbs that make up the feathers, have regained their structure, forming the waterproof matrix that makes the bird an air-tight vessel, keeping it from freezing at night, broiling in the hot sun or sinking in the water. “And that’s very gratifying,” she said, “but it’s hard to do it well.”

Tseng has spent much of her career improving the care of oiled birds. Before joining the Cummings School as an assistant professor in 2000, she was the staff veterinarian for the International Bird Rescue Research Center (IBRRC), a nonprofit that assists in spills around the world. She was there for the aftermath of the Cordiglia spill off the coast of South Africa, when

“Are there really that many oil spills in the world that there need to be vets who do only that? Sadly, there are.” —Christine Fiorello, V95
FIRST-TIME MISSION: SAVE THE TURTLES

Soon after the Deepwater Horizon explosion, biologists saw that the oil spill would saturate important feeding and nesting areas for five species of turtles, including the critically endangered Kemp’s ridley. It was like setting off a bomb in turtle Grand Central. Because spills affecting large numbers of turtles are rare, the turtle rescuers who arrived on the scene did not have years of de-oiling practice on their side, like the bird rehabilitators. They were essentially starting from scratch.

Capturing the animals was the easiest part. Gulf turtles—Kemp’s ridleys, greens, loggerheads, leatherbacks and hawksbills—spend the first few years of life hanging out near the lines of sargassum, a type of seaweed that is home to the crabs and other invertebrates the turtles eat. “The oil followed the same flow patterns that the sargassum did,” said Terry Norton, V86, just returned from a week caring for turtles at the Audubon Nature Institute’s aquatic center, outside New Orleans. “Normally when you look in there,” he said, “they are so fast it’s hard to catch them.” But in their oiled state, the turtles “were a lot slower and easier for rescuers to catch,” said Norton, the founder and director of the Georgia Sea Turtle Center on Jekyll Island.

More than 450 oiled turtles were found alive, and many of them were brought to the Audubon aquatic center for cleanup and care. But how to go about it? The scientific literature offered only one small study, published in 1995, that tested five turtles that were exposed to weathered South Louisiana crude oil. It warned of peeling skin, salt gland malfunction, pneumonia, gastric ulceration and organ failure. It also ominously stated that “the long-term biological effects of oil on sea turtles remain completely unknown.”

Improvisation reigned. The aquatic center had been designed to care for only a handful of turtles at a time, so it has to be retrofitted with new tubs and filtration systems. Kiddie pools became easily maneuvered wash basins. Plastic spatulas and credit cards helped pry open strong but delicate turtle jaws. And the blue fabric ribbons standing in for seaweed in the holding tanks were the same kind of strips you would find swaying in an automatic car wash.

But perhaps the most versatile tool was mayonnaise. It cleaned the oil out of the turtles’ eyes and mouths the way cold cream removes greasy makeup. Later, when the turtles began regurgitating and inhaling the doses of activated charcoal that were supposed to bind the oil in their guts, the veterinarians looked again to their favorite condiment. They mixed the mayo with cod liver oil—to thin it and provide extra nutrition—and tubed it down the turtles’ throats. “We still have no idea if it’s working,” Cara Field, an Audubon veterinarian, said in August. But unlike the charcoal, “it doesn’t seem to have made them worse.”

In fact, of the 182 oiled turtles they had taken in as of mid-August, only three had died—a wonder considering how fragile they are in captivity. The capture, transport and intake process is extremely stressful,” said Norton. One small hawksbill he treated weighed less than a pound. As they cleaned him, his heart rate dropped from 30 beats per minute to just four, which is moribund even in turtle terms. It took emergency measures to save him, but he recovered.

For the moment, the veterinarians were relieved to find the disorders they had been warned about did not materialize, even though many of the turtles clearly had ingested oil. (Some still had oil in their waste a week later.) They were also pleased to have this nursery full of reptiles, which taught them a lot about juvenile turtles in general, including their body weights, their blood values and the healthy and unhealthy things they eat in the wild. “We did find a lot of plastics in their feces,” Norton said.

For a lesson in resilience, they can turn to turtle number 108. The thick coating of oil he came in with may have been the least of his problems. Jagged holes on the top and bottom of his shell pointed to a run-in with a shark. One flipper had to be amputated early on. “He’s got some issues with his lung,” said Field, the Audubon vet. “And he still has broken bones that are healing.”

But the vets were optimistic that he would return to the wild.

“They do OK missing one, sometimes two flippers,” Norton said. “They are pretty tough animals.” —J.F.
1,200 rare African black-footed penguins were taken in for treatment.

For Fiorello, who has a doctorate in conservation biology and disease ecology and spent the last three years as an assistant professor at the University of Georgia, the BP leak was a crash course in hands-on post-spill treatment. She accepted the Oiled Wildlife Care Network job before the well blew, hardly expecting that her first task would be working on the largest oil spill in U.S. history. Even before her official start date, she volunteered to help treat the heavily oiled birds being pulled out of Louisiana, Alabama and Mississippi waters. As many as 40 birds would come in to the rehab center at once, and it was her job to care for the weakest of them and decide when they were stable enough to be washed. The veterans told her to scrutinize the blood work, but trust her gut.

“There’s always a judgment call, how much to rely on the objective numbers versus the overall feeling of the bird,” said Fiorello.

She quickly saw that the birds are more than just their lab workups. Pelicans, which stay close to shore and often observe humans from their perches on piers, are relatively laid back. “They can handle it,” she said of the washing protocol.

Gannets, on the other hand, spend most of their lives at sea, soaring a hundred feet above the ocean and then diving in at 60 miles per hour to catch fish. “They are beautiful birds,” Fiorello said, “but boy, do they have an attitude. They are just not afraid. You open the cage, and they give you this look that says, ‘Bring it on.’ ” They have very strong, sharp bills, and they are happy to use them. But from a rehabilitator’s perspective, they are also harder to keep healthy in captivity.

That fragility was even more apparent when the IBRRC began in 1971, in response to the collision of two tankers in San Francisco Bay that spilled a million gallons of oil. Of the 7,000 birds washed in that spill, not quite five percent survived to be released.

But wildlife veterinarians have learned a lot since then. Today, everyone knows that Dawn dishwashing liquid is de rigueur for bird cleaning, but it wasn’t until laboratory tests with feathers in the 1980s that researchers settled on it as the most effective way to clean a bird and still have it survive the bath. In the 1950s and ’60s, desperate do-gooders slathered birds with things like butter, lard, powdered chalk, mascara remover and waterless hand cleaner. While ineffective, these applications were probably less harmful than the harsh, fuming solvents that were used in the 1970s.

Not every new development is a good one. “In any spill, there are people coming out of the woodwork who have crazy inventions,” Tseng said. She was unimpressed by an appliance that emerged from Europe a few years ago. “It was kind of a washing machine. You would put the bird inside, and the wings were pinioned and the legs were shackled.” Tseng took a pass on that one.

The Oiled Wildlife Care Network is currently experimenting with powdered diets for seabirds (easier to store and transport than freezers full of fish) and infrared cameras to quickly check whether a bird’s feathers are waterproof. Tseng would like to see better antifungal medications to treat the respiratory problem and blood test criteria that would tell a veterinarian whether the bird has a decent chance of survival. “Just being able to more closely triage birds would be helpful in allocating resources,” she said.

Whenever a big spill dominates the news, someone raises the question of whether the wildlife washing is worth it. A Newsweek article with the headline “Should We Clean Oiled Animals?” quoted Daniel Anderson, an ornithologist at the University of California, Davis, as saying,
“It might make us feel better to clean them up and send them back out. . . . But there’s a real question of how much it actually does for the birds, aside from prolong their suffering.” The article cited Anderson’s disappointing study of pelicans that were rescued from the American Trader spill of 400,000 gallons of crude off Huntington Beach, Calif., in 1990. It found that only 12 to 15 percent of the rehabbed birds survived for two years, compared with 80 to 90 percent of uncontaminated pelicans. He argued it would be better to euthanize some species and put the time and money saved toward other conservation efforts.

“It’s very frustrating to hear this brought up again and again,” Tseng said. She can just as easily point to a study of western gulls in California that found better survival rates among the birds that had been oiled and rehabilitated than among the control birds.

But generally, she said, there is a dearth of good studies on what happens to the birds post-rescue. It just isn’t that easy to track seabirds. Radio transmitters, which were used in the 1990 pelican study, may themselves interfere with the birds’ survival, said Jay Holcomb, executive director of the IBRRC and the manager of the Hammond rehabilitation facility. He brought up a study of common murres (relatives of the puffin) that were fitted with transmitters and then observed both in captivity and in the wild. “They would spend all their time fighting to get the transmitter off,” he said. “They would rip them out of their back, leaving a hole. And in the wild, they wouldn’t eat.”

Leg bands are less intrusive, but also less reliable. “The only way you get banding data is if one of these birds washes up dead on the beach,” Tseng said. “Most of the time, if they die, they sink.”

It’s always worthwhile to save even a few birds of an endangered species, according to Tseng (she’s not the first to point out that brown pelicans were only recently delisted). But even treating more common species is valuable practice.

She particularly bristles, in her own calm way, at the implication that she and the other rescuers toil at a futile task to make themselves and the public feel better. “I’ve worked at spills where we euthanize half of the birds in the beginning if they don’t have a decent chance of going through the whole process,” she said. “It isn’t as if everyone is a bleeding heart and wants to save every bird. Everyone is very realistic during these spills.”

Thankfully, that kind of culling hasn’t been necessary with the Deepwater Horizon spill. As of mid-September, only 8,000 or so birds had been collected, alive or dead, and only about half of those were visibly oiled. It could be that many more died and sank. But just as likely, the birds benefited from the warm Gulf waters, which kept more of them from freezing to death before being found. (In contrast, the cold proved devastating to the 250,000 birds believed to have died in the Exxon Valdez spill in Alaska.) The warm temperatures also seemed to help evaporate the oil—its disappearance hastened by oil-eating bacteria. With much of the surface oil gone, the rehabilitators in Hammond planned to return many of the birds to unsullied areas nearby.

But even if the rescue efforts had had a less happy outcome, Tseng would still have argued that they were worth it. There is a practical argument to consider: if wildlife professionals hadn’t done it, people with less skill would have tried, potentially hurting themselves (crude oil contains carcinogens and neurotoxins) and hurting the birds, too. “No one is going to stand by and see these oiled birds and not do anything about it,” Tseng said.

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Protecting Those Who Serve

The Hospital for Large Animals recently welcomed several of Boston’s equine finest to the Grafton campus. The Boston Park Ranger Mounted Unit trucked six patrol horses, including Frederick, right, from its stables in Franklin Park to the Cummings School for comprehensive wellness exams. The mounted unit, established in 1982 by the Boston Parks and Recreation Department, patrols all nine parks in Boston’s Emerald Necklace as well as neighborhood parks and cemeteries. Above, Chief Gene Survillo and Sgt. Hodari Keels watch veterinary technician Darlene Staplins check Baron for lameness. The examination team, led by Carl Kirker-Head, an associate professor of clinical sciences, also included resident Gustavo Abuja, Kristy Bard, V11, and Erin McInerney, V11.
Veterinary students make their mark in global health research
By Genevieve Rajewski

Every year, the nation’s graduate students in the health sciences compete to become Fogarty International Clinical Research Scholars. Designed to position the next generation of health-care leaders to advance public health worldwide, the program traditionally has been the sole province of medical students.

That is, until three years ago, when Elliott Garber, V09, MPH09, became the first U.S. veterinary medical student selected to participate in the highly competitive program, created by the National Institutes of Health (NIH) in 2003.

Of the six U.S. veterinary medical students who have been selected as Fogarty Scholars, four have come from the Cummings School of Veterinary Medicine, and a Cummings alumna is the only veterinarian in a Ph.D. program to have participated.

The Tufts-incubated Fogarty Scholars have formed a support network to encourage more students to follow in their footsteps. This kind of work is critical for the long-term health of both humans and animals, says Joann Lindenmayer, V85, an associate professor of environmental and population health at the Cummings School.

“Humans do not live in a vacuum,” says Lindenmayer, who mentors students interested in seeking a Fogarty. “Public health needs to consider both animals and the environment.”

Between 20 and 30 Fogarty Scholars—less than a quarter of those who apply—are chosen each year to conduct research at an NIH-funded center in a developing country. Before they head off on their 10-month international assignments, the scholars spend two weeks at the NIH campus in Bethesda, Md., for orientation and intensive training with an entire cast of international researchers.

“Orientation is one of the best parts of the Fogarty experience,” says Jennifer Zambriski, J00, V06, who participated as a Ph.D. student from Cornell University and recently visited the Cummings School to encourage Tufts students to apply. “You look around and realize you’re completely surrounded by the leaders of international global health institutions who are now suddenly your peers,” she says.

Zambriski’s Fogarty research took her to South America last year. Under the mentorship of Robert Gilman, of Johns Hopkins University, she studied Brucella melitensis in the milk and blood of dairy goat herds in Peru and Bolivia to assess the prevalence of the bacterium that causes brucellosis, a highly contagious disease that humans contract by consuming unpasteurized milk or cheese from infected animals. In addition to producing chronic illnesses, including recurrent fevers, joint pain and fatigue, brucellosis can lead to miscarriage in women.

The chance of miscarriage from brucellosis “can be as high as 43 percent in the first and second trimesters, which is scary—and something we would never tolerate in the U.S.,” says Zambriski. “So...
why is it OK if it’s [happening to] poor people in Peru?”

Now working part-time as an emergency veterinarian in upstate New York, Zambriski is studying *Cryptosporidium parvum*, a water-borne pathogen that causes severe gastrointestinal distress, as part of her doctoral work in epidemiology and international agriculture at Cornell.

As the first U.S. veterinary medical Fogarty Scholar, Elliott Garber shipped off to Vellore, India, to investigate gastrointestinal infections that are transmitted between animals and humans. Working with researchers at Christian Medical College, Garber explored how diseases that originate in livestock and wildlife affect humans in communities where people live in close quarters with animals.

**ON THE GROUND IN PERU**

Miranda Hillyard, a 2009–10 Fogarty Scholar, credits Garber with inspiring her to apply. She went to Peru to study Chagas disease, which affects upwards of 11 million people in Central and South America and can lead to heart disease. The parasite that causes Chagas, *Trypanosoma cruzi*, is transmitted to animals and humans by the kissing bug, a big blood-sucking insect.

“People who are infected with Chagas disease often do not get sick until 10 to 20 years [after they are exposed to the parasite], but then they go into heart failure,” says Hillyard, V11. “It’s often not diagnosed, because [even] if you die in your 40s of heart disease, it’s not something commonly linked to an infectious disease.”

Hillyard also worked with Gilman, of Johns Hopkins, in collaboration with the Universidad Peruana Cayetano Heredia, the premier medical school in Peru, on gaining a better understanding of how the disease spreads. In Arequipa, the second largest city in Peru, Hillyard tested for the Chagas parasite in dogs and in guinea pigs, which most rural households raise for food, to determine why the disease exists in some households, but not in neighboring ones.

The project team also was the first to document cases of Chagas in northern Peru. “We took trucks and hiked to five tiny villages where there were only between seven and 60 households and no electricity, running water or sewage,” says Hillyard. “We [attempted to sample] blood from everyone in the community,” she says. This year Fogarty Scholar Karen Alroy, A05, V12, is continuing Hillyard’s work on Chagas.

Also in Peru on a Fogarty this year is Marieke Rosenbaum, V12, who is investigating the black-market sales of New World monkeys, small- to mid-sized primates that are kept as pets in rural parts of Central and South America. Working with Joseph Zunt, a global health physician at the University of Washington, Rosenbaum will collect saliva, feces and hair samples from the monkeys and the people who buy and sell them to determine the ways in which diseases such as tuberculosis and viruses that affect the digestive tract are passed between species.

Taking a year off from veterinary school to pursue global health work has opened doors for Tufts students, says Lindenmayer. “Our students have been wildly successful with applying to Fogarty, and the program has set them on career paths that would not be possible otherwise,” she says.

The international experience has already advanced Zambriski’s career. She was invited to present her Fogarty research at the International Congress on Infectious Diseases as well as related work on a new laboratory culturing method at the annual meeting of the American Public Health Association. And she was just awarded a two-year fellowship from
the National Science Foundation to study Cryptosporidium parvum in East Africa.

Zambriski and the other Fogarty Scholars pursuing veterinary careers are, in turn, boosting the profile of the profession, says Lindenmayer. "Veterinarians currently constitute less than one percent of the staff at national public health organizations like the NIH, Centers for Disease Control and the FDA," she says. "Our students represent the very best of the profession. The more of them who get into programs like Fogarty, the more public-health leaders will get to know them and come to appreciate and involve veterinarians for the breadth of their experience and perspective."

While Miranda Hillyard says she most enjoys the new Spanish-language skills and friendships she developed while in Peru, she also values the more-humbling aspects of the experience.

"There's a small, wealthy section of Lima where people have the same attitude toward dogs as we do here," she says. "But outside that tiny area, dogs don't live in houses or have any veterinary care. They can be quite skinny, which is awful. But it's a relative awful, given that people are living with blood-sucking, disease-causing insects that come out of the walls and mattresses at night," she adds. "I think it's a good perspective to have. In the U.S. we can sometimes be judgmental of people who can't do what we would do for our own pets."

FUTURE VETS, PERHAPS? High school students get a glimpse into the world of veterinary pathology during the 2010 edition of Adventures in Veterinary Medicine, the Cummings School's summer career exploration program for individuals, from middle school through adults, who are considering becoming veterinarians. This is the program's 20th anniversary, and it has become a reliable pipeline for recruiting veterinary students. Roughly 20 percent of the current D.V.M. students at the school are alumni of Adventures in Veterinary Medicine. Applications are being accepted for the 2011 sessions. For more information, visit www.tufts.edu/vet/avm.

AND NOW THEY ARE 2,000 STRONG

The Cummings School of Veterinary Medicine welcomed 74 new veterinarians into the profession at its commencement exercises on the school's North Grafton campus in May. With those graduates, the school now has more than 2,000 alumni.

In addition to receiving their D.V.M. degrees, six students received master’s degrees through the school’s combined-degree programs. Two students combined their veterinary studies with public health, one with comparative biomedical sciences, and three with the school’s laboratory animal medicine program. The school also awarded its third Ph.D. in biomedical sciences to Yi-Lin Yang, whose thesis was on the water-borne parasite Cryptosporidium parvum, which causes gastrointestinal illness.

Speaking to the graduates, Jamshed Bharucha, Tufts University’s provost and senior vice president, said veterinarians are more critical than ever. “Many of the most dangerous diseases that affect humans have origins in animals,” he said. "In an era of globalization, he added, “a global approach to health is critical today.”

At least two members of the Class of 2010 took nontraditional paths to veterinary school. Cara Kneser received her D.V.M. 30 years after she completed her undergraduate studies, and Nicholas DuLong, the student speaker at the ceremony, founded a now-defunct record label after earning his degree at the University of Vermont and also worked in technical support for a company founded by Ray Ozzie, now chief software architect for Microsoft.
ET ANOTHER SUPERBUG HAS ARRIVED. ONCE AN UNCOMFORTABLE intestinal malady confined mostly to the elderly, the bacterium known as *Clostridium difficile* now stalks the nation’s hospitals—causing gastrointestinal distress, and even death, in younger, otherwise-healthy individuals.

Most of us have the typically harmless bacterium known as “C. diff” in our bodies at one time or another. However, things can go awry when an overuse of antibiotics kills off the “good bacteria” in the intestine, causing the C diff bug to go into overdrive and unleash two toxins that attack the colon. Symptoms start with diarrhea and can develop into life-threatening inflammation or enlargement of the colon.

Nearly 30,000 people in the U.S. die annually from C. diff, according to the Centers for Disease Control and Prevention, and the frequency of infections and deaths from C. diff are on the rise. The elderly, who generally have weaker immune systems, continue to be most at risk. But the CDC recently warned that C. diff infections are increasing in traditionally “low-risk” populations, including women who have just given birth and other seemingly healthy people.

“The disease has become much more severe and much more difficult to treat,” says Hanping Feng, a biomedical researcher at the Cummings School of Veterinary Medicine.
Feng and his research team are on the frontlines of fighting the superbug with a three-pronged attack. They’re developing a vaccine to prevent infection, a drug to treat it and a rapid test to diagnose it.

Researchers suspect that C. diff has emerged as a superbug because the overuse of antibiotics has bred an epidemic strain of the bacterium. First reported by the CDC in 2004, this strain appears to be far more virulent—producing a far greater number of toxins than other strains of the bacterium—and more resistant to existing treatments.

Shed in feces, C. diff is spread by contact and produces spores that can linger for months on surfaces, remaining stubbornly resistant to the disinfectants and alcohol-based sanitizing hand foams used in hospitals. Once ingested, the spores re-activate and start spawning toxins.

The best defense, Feng says, would be to prevent the infection altogether. Supported by a five-year, $4 million grant from the National Institutes of Health, Feng and his research team have developed a vaccine that is showing promise in animal studies.

Like viral infections, bacterial infections activate our body’s immune system. When exposed to a small amount of bacteria, our bodies produce antibodies—proteins in the blood—that help white blood cells seek out infectious invaders and destroy them. Our bodies then retain the memory of this battle, allowing antibody-producing cells to respond faster and more aggressively the next time the same bacterium attacks.

However, Feng says, it can be tricky to develop a vaccine to prevent such an infection when a bacterium does not normally cause disease, as is the case with C. diff. in most of us.

Fortunately, antibodies also can protect us from threats by being trained to recognize and respond to just the part of a pathogen that causes an infection. “Because the two toxins produced by the C. diff bacterium are the primary reason for the disease, we have focused our efforts on generating a host antibody response that neutralizes them,” says Feng.

To create their vaccine, Feng’s team engineered the world’s first “recombinant” and “chimeric” C. diff toxins, genetically modifying them so they could be reproduced easily for study. The researchers then used this work to create a single, harmless protein that essentially acts as a decoy: the protein used in the vaccine looks like the toxins to the body, which gets tricked into producing antibodies capable of neutralizing the real toxins—without ever being subjected to their harmful effects.

C. diff spores can linger for months on surfaces, remaining stubbornly resistant to disinfectants and alcohol-based sanitizing hand foams.

Ironically, to treat even the most virulent strain of C. diff, physicians are prescribing the very thing that has caused a spike in infection rates: antibiotics. Most patients are treated with the less-expensive metronidazole, while those with more severe cases receive the antibiotic vancomycin, which is quite costly, says Feng.

But more than 20 percent of patients are not getting better on antibiotics, according to a study in the Cleveland Journal of Medicine. Moreover, 12 to 24 percent of patients treated successfully with antibiotics will get sick again, the study found. And if a patient has two or more episodes of C. diff, the risk of additional recurrences jumps to more than 50 percent, which significantly increases a patient’s risk of dying, according to the New England Journal of Medicine.

The vaccine developed by Feng and his colleagues has shown promise in conferring rapid protection against initial and recurrent C. diff infections in mice. Someday, Feng says, the vaccine may be administered routinely to high-risk individuals, including hospital patients on antibiotics.

In search of a more effective treatment for C. diff, Feng and his team are working with colleagues from the Division of Infectious Diseases at the Cummings School on a new drug that could be a lifesaver for the growing number of patients who do not respond to antibiotics.

Like the vaccine, the drug again uses the mutant toxins as immunogens, which are proteins with potent abilities to generate antibodies. Using genetic engineering and selection technologies, developed by Charles Shoemaker’s group in the infectious diseases division, Feng’s team generated tiny neutralizing antibodies that they hope to deliver, Trojan Horse-style, into the gut, where the real toxins do harm. Once inside the intestine, Feng says, these tiny antibodies should seek out and bind to the C diff. toxins, thwarting infection by preventing them from entering the cells.

Feng and his colleagues in infectious diseases also developed a rapid, ultra-sensitive test to detect C. diff infection. In less than three hours, the diagnostic tool can determine if a patient is infected with the virulent strain of C. diff—giving physicians a head start on treatment. The work is being funded by a research development grant from Merck.

Feng credits his team’s multi-front strategy to combat C. diff to the holistic research approach he has been able to pursue at Tufts. “The first thing we did here was to build a solid foundation [of the basic research tools needed] for making substantial, fast progress,” he says. The goal was to understand how the bacterium produces toxins and how the body reacts to the intruders, and then to use that knowledge to design counter-measures against the infection.
His story begins with a starkly simple sentence: “I had a dog who died.”

Anne Engen knows it’s a blunt opening to an interview. But it made her start thinking seriously about helping Tufts build its oncology program. She and her corgi, Dusty, were inseparable, as companions and canine freestyle dancers. The pair even demonstrated their repertoire for a network television audience on the Today show. Dusty, though, could not outpace cancer.

Through the course of Dusty’s treatment, which gave him eight months of a good life, Engen became a student of the disease. She discovered a growing body of research that explores how some cancers behave the same in dogs and in humans, including non-Hodgkin’s lymphoma, osteosarcoma (bone tumors), oral melanoma and brain and bladder tumors.

When Dusty died, just short of his sixth birthday, Engen was determined to find a way to support research that might help other animal lovers avoid the devastating loss of a pet from cancer.

She and her husband, Travis, have donated $390,000 to help the Cummings School establish a comparative oncology program, an emerging field that brings together veterinary and medical oncologists to advance our understanding of the biology of cancer and to improve treatments for the disease in animals and humans.

“This is treatment for the future,” says Engen. “The ability to treat animals with the best resources, as well as to advance research that helps animals and people—that’s a tremendous combination.”

The comparative oncology program will benefit from collaborations with the Tufts Medical Center’s Cancer Center in Boston and will advance clinical and basic science research at the Cummings School, says Dean Deborah Kochevar.

“Cancer is an enormous challenge in both veterinary and human medicine,” Kochevar says. “Developing the next generation of treatments will require creative approaches to research and collaborations that bridge clinical practice and basic science. We believe that we can contribute to understanding the genetic and environmental factors linked to cancer.”

It is not the first gift the Engens have made to the school. Their gratitude to Tufts veterinarians for their compassionate care of Dusty and another beloved corgi, Belle, led to philanthropy that allowed the Foster Hospital to purchase important diagnostic equipment and develop initiatives in internal medicine, critical care and interventional radiology.

This latest gift, says Engen, is intensely personal. “Giving is my way of pushing back against aggressive cancers,” she says.
SYMPOSIUM HONORS VETERINARY TRAILBLAZER

To describe Elizabeth Atwood Lawrence as a pioneer doesn’t begin to do justice to this remarkable scholar, teacher and advocate for animals.

One of the first women in the U.S. to graduate from veterinary school, she combined that training with her expertise as an anthropologist, studying animals in contexts as diverse as sport, religion and folklore. She ran a practice, wrote several books, earned a Ph.D. in cultural anthropology and taught at Tufts, where she developed a curriculum in ethics and values that has distinguished the Cummings School throughout its history.

To celebrate her remarkable career (she died in 2003), the Cummings School hosted a symposium in her honor, “Hoofbeats and Society: The Horse-Human Relationship,” this past May. The conference was made possible through the support of the Oliver S. and Jennie R. Donaldson Charitable Trust and was organized by a committee that included Cummings School faculty from the Hospital for Large Animals and the Center for Animals and Public Policy as well as Jay Merriam, known for his international work in equine welfare.

The conference coincided with the 25th anniversary of the publication of Lawrence’s book, *Hoofbeats and Society: Studies of Human-Horse Interactions*.

“We saw this as a good opportunity to revisit the major theme of her book—the human fascination for the horse—and to continue to broaden people’s views of what good horse welfare means,” said Allen T. Rutberg, assistant director of the Center for Animals.

Attracting some 70 attendees, the symposium brought together speakers with varied insights into the social and economic issues entwined with equine care. Sandra Olsen, curator of anthropology at the Carnegie Museum of Natural History, provided a historical perspective on the horse as a beast of burden. She has directed digs in Kazakhstan that suggest horses were domesticated 5,500 years ago—1,000 years earlier than previously thought. Nicola Jarvis, head of veterinary services at Redwings Horse Sanctuary in England, has witnessed the ability of horses rescued from abuse to be rehabilitated and adopted. Derek Knottenbelt, a professor at the University of Liverpool in England, described how donkeys, the cheapest farm power in sub-Saharan Africa, typically suffer from overwork and malnutrition. Andrew Rowan, president and CEO of Humane Society International, delivered a tribute at the event dinner; a former Tufts faculty member, Rowan was a co-founder of the Center for Animals.

While her scholarship focused primarily on horses, Elizabeth Atwood Lawrence was a lover of all animals.

A Forever Gift

An ad executive who loved the outdoors, Edward Lanciani enjoyed hunting and fishing in Maine, Newfoundland, the Caribbean and the western United States.

But the expert fly fisherman would release fish after he caught them, says Leon Lenick, a close friend. And in the 1970s, he stopped hunting. “He felt it was very wrong to kill a defenseless animal,” says Lenick.

Tufts is now a beneficiary of Lanciani’s lifelong love of animals and the outdoors. Lanciani, who died on July 15, has left approximately $1.5 million to the Cummings School of Veterinary Medicine to benefit wildlife medicine programs.

His bequest will go toward establishing the Anne and Edward Lanciani Endowed Fund for Wildlife Medicine, named for him and his wife. The fund will support the Tufts Wildlife Clinic and related programs in conservation medicine and environmental research.

Clinic Director Flo Tseng says an endowed gift of this size significantly stabilizes an operating budget that depends heavily on outside support, because clinic patients have no owners to pay for services. About 1,700 wild animals are treated at Tufts every year. “This gift helps us secure our quality programs, teaching our students how to work with wildlife and providing the best care that we can to all the animals that come here,” she says.

Lanciani, who studied communications at Boston University, served in the Marine Corps and had successful 40-year career in the newspaper business, culminating in a position as vice president of advertising at the *Providence (R.I.) Journal*. He retired to Maine in 1984.
The Doer

Elaine Arthur, a Wildlife Clinic volunteer—and then some

Elaine Arthur enjoyed a long career as a physical therapist before finding a new passion and sense of purpose eight years ago, when she started volunteering at the Tufts Wildlife Clinic. She sees firsthand the challenges that Cummings School veterinarians and students face each day, treating patients as diverse as a duckling, porcupine, screech owl or bobcat.

Her own work is as varied as the clinic’s caseload: doing laundry, cleaning cages, training new volunteers. She’s also acutely aware of the clinic’s operational priorities. When she sees something that needs to be done, or fixed, she responds.

Consider her gifts of a new anesthesia chamber and anesthesia shields, modestly priced equipment that enhances the treatment of wildlife in the busy clinic. Her passion for the place inspired her son to secure a matching donation that funded a new oxygen chamber. Elaine also initiated and has sustained for five years a $1,000 award, the Tufts Wildlife Clinic Student Excellence Award.

Now she has stepped up once again, this time with a gift of a $10,000 state-of-the-art device used to diagnose conditions of the retina. The instrument records electroretinograms (ERGs), or the electrical activity in the retina. Because all Cummings School students do a rotation in the Wildlife Clinic, her gift benefits the entire school.

“This gift makes such a difference in our ability to offer the best care to our avian patients,” says staff veterinarian Maureen Murray, V03. “We see a large number of birds of prey that suffer traumatic ocular injuries. Vision is so important to the survival of birds, hawks and falcons in particular. This ERG unit will allow us to better assess the effect of traumatic injuries on the function of the eye.”

Elaine acknowledges that her gift was a significant financial stretch, but she felt the time was right “to extend my usual boundaries.” The portable device had been on the clinic wish list for a long time, and after reading a proposal by Murray, she saw how indispensable the instrument would be on so many levels: teaching, diagnosis, treatment and research.

“The Wildlife Clinic is such an unbelievable learning environment,” she says, “and students need equipment like this, not only to provide great care, but also to be the best at their profession. I’m so fortunate to be able to share the joy of seeing my gift in use.”

Aside from that immediate satisfaction, she also sees the gift as a gesture of gratitude. She started volunteering after an injury forced her to retire “before I was mentally prepared for it,” she says. “Becoming a member of the wildlife team was a life-saving opportunity. I believe in a purpose-driven, care-giving life.”

“Elaine is such an inspiring person because she strives to make a difference every day,” Murray says. Says Arthur: “I once read that the greatest of all possible mistakes is to do nothing because you can only do a little. Do what you can. To me, that says it all.”
FOR 27 YEARS, JAMIE PENDLETON’S BLUE AND GOLD MACAW, Lady Cromwell, enjoyed perfect health—until the one day Pendleton heard her pet screeching in distress. She found the bird flapping its wings erratically, its talons clenched and eyelids fluttering. It marked the start of near-weekly seizures.

“It was just horrible,” says Pendleton. “I’d hold her until she stopped seizing. A couple of times I caught her starting to fall off her perch.” After months of unsuccessful treatment near her home in New York, Pendleton drove her beloved companion three and a half hours to the Cummings School’s Foster Hospital for Small Animals.

What transpired next was a medical mystery worthy of the television show House.

The parrot’s previous blood tests showed a toxic level of zinc. Joerg Mayer, Tufts’ exotic animal specialist, hospitalized the macaw for intensive hydration and chelation therapy, injecting agents that bind with the metal in the body’s tissues so it can be released into the bloodstream and flushed out through urination.

Mayer asked Pendleton to have the bird’s cage tested for heavy metals since some have been known to have toxic finishes. The cage indeed tested positive for both zinc and lead, and Pendleton replaced it with a toxin-free one. However, Lady Cromwell continued to have seizures, and her blood tests still showed high levels of zinc.

“I told Jamie, ‘You still have zinc somewhere in your house. We have to play detective,’” says Mayer. He introduced her to Eric Koslowski, of Environmental Testing and Research Laboratories in Leominster, Mass., a client of Mayer’s with whom the vet has worked on cases and scientific studies.

“We looked at the toys. The food. The room,” recalls Koslowski. “The well water was supposed to be OK, but we double checked.” It was clean, but the water coming out of the kitchen faucet was loaded with zinc. The culprit: several corroded galvanized tanks used to store the water. The family switched to bottled water until the tanks were replaced by fiberglass ones—an urgent fix, given the zinc toxicity can be fatal in humans.

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“I always compare exotics’ high metabolism to grand prix racing engines,” says Mayer. “You wouldn’t take a Ferrari to Joe’s Gas ‘n Gulp because regular gas is too dirty for them: they need very pure fuel. Well, the same goes for birds, which is why coal miners and submariners used to take along canaries (as sentinels of air quality). When a bird fell off its perch, they knew it was time to surface for fresh air because the carbon monoxide level was dangerously high.”

Today, Lady Cromwell’s blood levels have returned to normal. Although the macaw still experiences seizures, she has gone more than a month between incidents. “She is doing well on an anti-seizure medication,” says Mayer. “Hopefully we can wean her off it eventually.”

—GENEVIEVE RAIJEWISI

Macaw In A Coal Mine

The Scoop on Antifreeze Poisoning

Mary Anna Labato, V83, the president of the Massachusetts Veterinary Medical Association and a clinical professor at the Foster Hospital for Small Animals at the Cummings School, responds to a reader’s concern about antifreeze poisoning:

Q: I heard that Massachusetts passed a new antifreeze law. Does that mean I don’t have to worry if my cat accidentally ingests some?

A: Unfortunately, no. Although there are less-toxic coolants and antifreezes than those containing ethylene glycol, the new law does not mandate the utilization of those safer chemicals. Instead, it requires that commercially sold antifreezes contain a “bitting agent,” which does not make the antifreeze any less poisonous. But it does turn the normally sweet-tasting liquid bitter so that pets and kids might stop drinking it before consuming a toxic amount. The law also applies to commercially sold antifreeze, not the kind that gas stations and repair shops buy in bulk—something to keep in mind if you have your radiator flushed or filled professionally.

Ethylene glycol isn’t actually toxic to cats and dogs until their bodies begin to metabolize it. But if the early stages of antifreeze ingestion are missed or go untreated, crystals form in pets’ kidneys, causing acute, long-term damage. Only a few teaspoons can lead to kidney failure.

If you suspect your pet has ingested antifreeze (symptoms mimic human behavior after too much alcohol), head immediately to your local veterinarian, who will induce vomiting and use charcoal solutions to prevent absorption of the antifreeze into the gastrointestinal tract. He or she may start by delivering an antidote intravenously or referring your pet for hemodialysis to remove the toxins. Speed is absolutely critical to successful treatment.

Please email your questions for “Ask the Vet” to Genevieve Rajewski, Editor, Tufts Veterinary Medicine, at genevieve.rajewski@tufts.edu.

HOW TO REACH US

Main hospital switchboard and after-hours emergencies 508.839.5395
Henry and Lois Foster Hospital for Small Animals, appointment desk 508.839.5395
Hospital for Large Animals, appointment desk 508.839.5395
Tufts Ambulatory Service, Woodstock, Ct. 860.974.2780
Tufts VETS, Walpole, Mass. 508.688.5454
Wildlife Clinic 508.839.7918
Directions to Tufts (ext. 84650) 508.839.5395
Cummings School of Veterinary Medicine Administration 508.839.5302
Veterinary Student Admissions Office 508.839.7920
Veterinary Alumni Relations 508.839.7976
Cummings Veterinary Fund 508.839.7909
Tufts Pet Loss Support Hotline 508.839.7996
Continuing Education 508.887.4723
Public Relations 508.839.7910

Website: www.tufts.edu/vet

If you are interested in learning more about how you can support the Cummings School of Veterinary Medicine, contact: Shelley Rodman, director of veterinary development and alumni relations, at 508.839.7907, or email: shelley.rodman@tufts.edu.
TIPPING POINT

Cummings School herdsman Scott Brundage (back to camera) prepares to demonstrate sheep tipping, a basic of herd management, to a group of newbie farmers. As the eat-local movement grows, more folks are flocking to Tufts’ Livestock Field Schools, which take a hands-on approach to the ABCs of animal husbandry. For more on the story, turn to page 6.

Rescued

How wildlife vets took on the Gulf spill