When Injured Owls, Hawks, and Eagles Need Help, A Unique Group of Volunteers Come to Their Aid

On a blustery March day near Grindstone Creek Park in Columbia, Mo., Bob got a second chance. Shot by a hunter who destroyed one of the Great Horned Owl’s eyes, Bob was slowly uncoupled her hands and Bob eagerly flew back into the trees. Bob is one of hundreds of birds helped by a unique group of volunteers, veterinary medical students, and professionals called the Raptor Rehabilitation Project. The group, hosted by the University of Missouri College of Veterinary Medicine, has dedicated itself to the specialty medicine of healing and rehabilitating injured birds of prey and returning them to the wild.

The group is on call 24 hours a day and responds to requests from law enforcement and conservation departments. They drive hours in an ancient Ford minivan to capture injured birds and return them to the wild.

The group has three goals: Give medical care to and rehabilitate injured birds of prey so that they can be released into the wild, educate veterinary medical students about avian medicine, and educate the public about birds of prey.

Enrollment is open to veterinary students, faculty, and staff of the MU College of Veterinary Medicine. Interested members of the public can also participate, although medical treatments of the birds are performed by the veterinary medical students and faculty only.

These birds are often the victims of hunters, or are hit by cars. Sometimes, a bird fixated on catching a rat dinner will snag their keen eyes and get entangled in the trees.

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One notable case was a five-foot-long Trumpeter Swan shot on a November day by a hunter. These birds fall under provisions of the Migratory Bird Species Act and shooting one can result in a $15,000 fine and six months in jail. No wonder the hunter abandoned his prize when he got close enough to recognize it.

Students named this animal Venus and she needed orthopedic surgery. While the buckshot missed her vital organs, the pellets fractured many of the bones in one wing. Enter Dr. James “Jimi” Cook, the orthopedic surgeon who fixed the fracture by installing an eight-inch long pin to reattach the broken bones. During her rehabilitation, veterinary medical students who cared for Venus had to construct a “swan shield” to avoid the bird’s powerful serrated feathers.

Continued on page 6
This issue of Arkeology provides a glimpse of the amazing diversity of the animal kingdom, ranging from Lucifer, the tiny screech owl who couldn’t fly, to Miracle, the rare white buffalo whose birth was seen by some as a harbinger of world peace. These stories also remind us of the range of responsibilities that veterinarians have in caring for animals, be they great or be they small. While reading these stories, I couldn’t help but think of another story that chronicles the veterinary profession, James Herriot’s book, All Creatures Great and Small. In his inimitable way, Herriot (Alf Wight, in real life) mesmerized millions of readers by recounting the adventures (and misadventures) of an English country veterinarian. All Creatures Great and Small and Herriot’s subsequent books reminded us of our own humanity and the special place that animals have in our lives. Who among us has not been touched by animals, whether it’s a special companion that is there for us through thick and thin or a wild creature that strikes awe in us because of its sheer beauty. A special relationship with an animal often provides the spark that leads a young person to choose a career in veterinary medicine. And, in pursuing this career, veterinarians are constantly reminded of the animal kingdom’s breath and majesty. Dr. Thomas Williams witnessed first hand a wonderful example of this majesty while caring for Miracle. As detailed in the story, the legend of the Sacred White Buffalo started with the Lakota People almost 2,000 years ago. Of course, the special bond between animals and humans goes back even further, to the beginnings of life itself. This bond between animals and humans is further illustrated through the College’s Raptor Rehabilitation Project. People who come in contact with injured birds (or other animals) feel an obligation, perhaps a compulsion, to seek care for them. Fortunately, care for injured raptors is only a phone call away, as our students, faculty, staff, and other volunteers fulfill their own heartfelt obligation to protect our animal friends. Through their three-fold mission, Project members not only provide care to the injured birds, they also teach themselves and educate the public about birds of prey. The story about Copper, the 51-year old horse, also touches our hearts. Copper was certainly down on his luck when the Jefferson County Sheriff’s Office found him malnourished ten years ago. How easy it would have been to just put the old horse down. But, Copper had lived too long and seen too much for that. Kim Mestor came to his aid, providing another story of the tremendous bond that exists between humans and animals. Dr. Gheorghe Constantinescu also enjoys a special relationship with horses. Indeed, as detailed in his story, Art as Education, the horse is his favorite species. Thousands of veterinary students (and yours truly, as well) have sat spellbound while watching him effortlessly bring the horse’s head to life on a blackboard, often two at a time using both hands! Dr. C’s fascination with animals and art began early in life in his native Romania. We’ve been blessed to have him on our faculty for over 20 years. The final story in this issue of Arkeology highlights another special group of people, our College development team. With your help, they are raising funds to ensure that the College continues to do our part to nurture and celebrate the special relationship that exists between humans and animals. This may involve providing scholarships to truly remarkable students who have made veterinary medicine their career, supporting programs that literally breathe life into injured animals, or constructing facilities that make it all possible. As always, thank you for joining us on this voyage of Arkeology and for your support in advancing our programs in teaching, healing, and discovery.
The MU College of Veterinary Medicine has 120 professors.

Art as Education

Anatomy is one of the hardest subjects for veterinary medical students—Dr. Constantinescu makes it easier with his hand-drawn illustrations.

Dr. Constantinescu, professor of veterinary anatomy at the University of Missouri College of Veterinary Medicine, teaches anatomy with an artistic flair. In addition to lectures, laboratories, and books, Dr. C, as he is known, illustrates the relationships between bone, muscle, tissue, and skin by using his skills as an artist. With just a few pieces of colored chalk, he takes his students on a journey through the body, showing how the components of animals are put together and work. At the end of his classes, students have a visual understanding of anatomy that will serve them well when they transition to the veterinary medical teaching hospital and their first cases.

And, as a byproduct of this education, a series of illustrations are created. Full of curves and beautiful colors, they rival the beauty of commercial art, and have found their way into 20 books, published internationally, for appreciation by an entirely different audience.

Born to Draw

Dr. C learned about using art in teaching at an early age. “My mother, who graduated Magna cum laude from the Romanian Pedagogical (Education) Faculty (College), decided to help my brothers, sister, and me in doing our homework” he says. “During these sessions she showed us how to describe concepts using color pencils and watercolors.

“As a sophomore in the high school Zoology class, I illustrated different creatures. I was impressed by a photo of a dove on a rock in our textbook and I decided to draw it. I remember that I went to a book store and bought different qualities of pencils, from F, HB and the whole class of B, up to B6 (the B6 pencil was the darkest). And I illustrated my dove with different creatures. I was impressed by Ghetie, an artist himself, taught me how to use the pencil and the estompe (a pencil-like tool) to enhance shadows.”

Dr. C won his first art contest in 1955, taking first place, in his final year of veterinary college. “Since then, I have published 375 papers including books and chapters and taught Veterinary Anatomy to thousands of students in Romania and in the United States.”

A Class to Remember

Dr. C is a legend among MU veterinary medicine alumni. All MU veterinary medical students who have gone through Dr. C's anatomy class remember the experience. Dr. C’s ability to create a three-dimensional anatomical component on the blackboard during lectures helps students visualize structure and movement in a way no lecture alone could ever do. By drawing overlapping parts of an animal’s body—the bones, the muscles, soft tissue, and skin—he can create images from the inside out that help students see how body components are interrelated and work together.

“The so-called ‘visualization’ of the lecture helps students enormously,” he relates. “The actual image of the structure is immediately outlined in students’ minds. In the anatomy laboratory, they can correlate my drawings with the reality of the animal.”

Dr. C’s favorite part of the body to draw is the head, that part of the body that conveys the expressions and feelings of the individual. His favorite species is the horse. Drawing bones and muscles gives him the opportunity to better show the interrelationships between the bones, muscles, and skin of his subjects.

For his books, Dr. C does not work in computer animation as many artists do. His art is accomplished in traditional pen and ink, pencil, color pencils, watercolor, oil color, acrylic, and tempera—mediums from which he chooses among for specific drawings.

What is the hardest subject to draw? “Allow me to leave the modesty aside, and tell you that for me there is no subject I cannot draw,” he says. “Nevertheless, the most difficult part of a drawing is to proportion the illustration to look similar to the model, and to take the ‘perspective’ into account.

Dr. C’s greatest challenge to date is one he worked on this summer—a drawing of an anatomically perfect frog’s skeleton for a poster. Not a hard assignment for someone who has helped so many students through their most difficult class. Ark.
Veterinarian to the Sacred White Buffalo

All Patients Are Special.
Dr. Thomas Williams’ patient, however, was a symbol of possible World Peace

For sixty years, Dr. Williams, a native of Wisconsin, was a leader in buffalo veterinary medicine. He was well known for his expertise in dairy practice, large animal medicine, reproduction, housing and ventilation issues, and small animal medicine.

Q: Do you have experience in buffalo veterinary medicine? If so, how did you acquire it?

Dr. W: I’ve had some exposure at MU. Most of my experience came through 21 years of personal research at the Evansville Veterinary Service. There, I practiced all aspects of dairy practice, large animal medicine, reproduction, housing and ventilation issues, milking machine analysis, as well as small animal medicine.

Q: What significant conditions did Miracle have during your time with her? How did you treat them?

Dr. W: Miracle mostly had minor problems. Generally, they were minor respiratory issues and injuries. Her major problem was a bone abscess affecting the distal phalanx.

Q: In regard to the treatment of the abscess in her hind leg in 1999, how difficult was the anesthesia? How did you judge what to do?

Dr. W: Anesthesia in buffalo is tricky. I consulted with noted veterinarians in the US and Canada. We came up with a combination of Valium and Ketamine along with a local block. I received e-mails from all over the country sharing ideas and suggestions.

Q: What was Miracle’s general medical condition? Do you know of any conditions that could have led to her death?

Dr. W: As far as I know, Miracle had been in very good health until just prior to her death. She was very special and her conditions were accordingly excellent. As I haven’t seen her for four years, I can’t speak to her recent condition. She was not old for a buffalo.

New Patients?

The Heider Family never realized how the arrival of a white baby buffalo would change their lives.

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Were you aware of Miracle's significance to the Lakota when you examined her? Were you ever in contact with any representatives from any Indian nation before or after your procedure?

Dr. W: I could not help but be aware of her importance to the Indian culture. At the time of her birth, the media presence was overwhelming. The volume of people visiting was amazing. I had no contact from any Indian nation about the surgery, but her owner, Mr. Heider, said that tribal elders were in contact with him before, during, and after the surgery.

Was there any media interest in your work with her?

Dr. W: Yes. The media wanted to film the procedure. That didn't happen. Buffalo are very touchy on a good day, and I don't need lights and a news team looking over my shoulder.

What brought you from Wisconsin to Osage Beach, Missouri?

Dr. W: I was born and raised in Missouri and came to the Lake of the Ozarks with my folks in the 1950s and '60s. For years I would bring my family down from Wisconsin with a thought to retiring there. An opportunity arose to restart a practice at the Lake at the same time that I had surgery on my arm for a trapped ulnar nerve. Since that eliminated large animal medicine for me, I took a leap of faith and moved back to Missouri. I own the practice and we specialize in canine and feline medicine, the basics, medicine, surgery and dermatology.
A Second Chance

Continued from page 1

— a reminder that these are wild creatures who will vigorously defend themselves against even those who are trying to help.

Bob’s was a typical case. He was found emaciated and weak near a Fulton, Mo. roadway several days after being shot. His worst injury was a buck-shot pellet wound to one eye.

At the College’s Veterinary Medical Teaching Hospital, Bob was treated with antibiotics. His first few months were rough. His injured eye had to be surgically removed. A second pellet wound to the jaw required additional surgery. After his successful hospital stay, project members worked on helping him regain his strength and flying and hunting skills.

Bob’s release was accomplished with an added twist — a small radio-transmitter was attached to him that will allow project members to track his movements. This effort will not only help the group determine if one-eyed birds can still hunt and thrive, but aid in Bob’s rescue if he were unable to adapt.

Exposure to such cases gives veterinary students a unique insight into avian medical care. birds, especially the flying hunters like owls and hawks, have special medical needs quite unlike the dogs and cats that typically come into the teaching hospital.

Rehabilitation and Another Chance

Once the birds have been released from their medical caregivers, group members then provide whatever rehabilitation and therapy is needed to help the birds regain their flying and hunting skills.

Much of this work occurs in the group’s flight cages—specially-constructed buildings that let the birds and hunting skills.

After his release, his movements were monitored for 30 days. At the 30-day mark, Bob was considered healthy enough to begin flying and hunting again. Bob was released back into the wild.

Most birds that are released will be able to return to the wild and continue their hunting and flying activities. In some cases, however, birds may experience complications or setbacks that require medical intervention. This is where the group’s expertise and resources come into play.

A juvenile Eastern Screech-owl.

Raptor Group residents nicknamed The Three Amigos.

The Raptor Rehabilitation Group is looking for donations to purchase a new minivan to replace its high-mileage 1980’s vehicle. Donations of a new or used vehicle, or cash toward a purchase, would be appreciated by the group. For more information, please contact Greg Jones, director of MU CVM development, at 573/884-2890. Donations may be tax deductible and sponsor recognition on the vehicle is possible.
Not Yet Out to Pasture

The Old Gray Mare No More

Not long ago, a 15-year-old horse was considered elderly and one in its 20s was a curiosity. But horses, like humans, are now living longer. And they are remaining functional well into their 30s and beyond.

An animal is considered geriatric when it has lived three-quarters of its expected lifespan. Assuming an average equine life span of 27 years, a 20-year-old horse is equivalent to a 65-year-old person.

Copper shows some sign of his age. His walk is slow, he has slight cataracts, and his teeth are almost gone. Still, he continues to enjoy being with his mare friends, and his owner vows to keep looking after him as long as he remains pain free and happy.

The Old Gray Mare Really Ain’t What She Used to Be … As Owners Elect to Keep Their Geriatric Horses Around

Copper was a celebrity. Students, staff, and faculty from all over the teaching hospital came to pay their respects. While he was probably in some discomfort, he would still occasionally give an enthusiastic whinny to let his admirers know that he was not yet over the hill.

At his admission to the University of Missouri College of Veterinary Medicine Equine Clinic in April 2004, Copper, at 51 years old, was probably the oldest living horse in America. And, he may have been the oldest horse in the world, according to other records.

The former St. Louis police horse was admitted because he wouldn’t eat. After treatment, Copper returned to dine in his grassy pasture near the eastern Missouri town of Richwoods.

A horse’s typical life span is 25 years. Copper, a mixed Morgan gelding, was born in 1953. He’s outlined a host of more famous equines, including all three Triple Crown winners born in his Metome.

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Equestrian Maladies

Many older horses are reluctant to retire these athletes if today’s horses are well trained, and own long their horses’ useful lives. Many of today’s horses are more common than ever.

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Equine Senior Citizen Maladies

Older horses suffer from a variety of ailments, notes Dr. Philip Johnson, MU professor of equine medicine and surgery. The single most common is colic.

Colic is a term for a range of abdominal distresses — from gas to life-threatening intestinal twists. Most colics are mild and the digestive system rights itself with minimal medical intervention. Major intestinal disruptions, including blockages, twists and ruptures, can be fatal without surgery.

Dental wear is another oft-seen equine senior citizen malady as their teeth succumb to wear on a grass-based diet. Grass may look soft, but it contains sand-like silica that are among the hardest compounds in nature.

Worn teeth and dental disease hinders the horse’s digestive ability. A horse must be able to thoroughly chew its feed for proper digestion.

Keeping teeth in good shape is a veterinary necessity. Horse teeth stop growing around 15 years. By 20, all but one-half-inch stubs are gone. Some horses live long enough to wear their teeth away, leaving them incapable of chewing a normal equine diet.

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Keeping teeth in good shape is a veterinary necessity. Horse teeth stop growing around 15 years. By 20, all but one-half-inch stubs are gone. Some horses live long enough to wear their teeth away, leaving them incapable of chewing a normal equine diet. Diets specifically for old timers are becoming common.

Treasuring and Researching the High-Mileage Horse

As Missouri’s premier referral clinic, the MU Equine Clinic often sees these equine senior citizens—a great learning experience for veterinary medical students who learn the practical medicine on keeping the old timers going. The cases also give MU faculty an opportunity to learn more about the special needs of older horses.

In fact, a new term, Equine Metabolic Syndrome (EMS), has been coined at the clinic to better identify several oft-misdiagnosed age-related problems. EMS describes horses that are insulin resistant, obese, and tend to deposit fat in places such as the crest of the neck, the sheath, and on the rump near the tail head. These animals tend to gain weight very easily and are more likely to founder.

“Dr. Johnson has described EMS which we are currently investigating and have published several papers on in the past two years,” says Dr. Nat Messer, associate professor of equine medicine and surgery. “I have been doing research on equine thyroid dysfunction which is thought to occur in mostly older horses. Many older horses are afflicted with laminitis, another area of investigation in which Dr. Johnson and I are involved.”

Another area of study involves horses that develop an eyelid cancer called advanced squamous cell carcinoma.

There are few reliable remedies beyond removal of the eyelid, which also means that the eye must be removed as the eyelid protects the eye and keeps it moist. Dr. Elizabeth Giuliano, assistant professor of veterinary ophthalmology, hated to see removal of healthy eyes and, on her own, developed a novel technique using light-sensitive anti-cancer agents that are delivered to the eyelid to target individual cancer cells and not the surrounding tissue.

Using this new therapy, she has been able to cure the eyelid cancer, thus saving the eye. So far in a dozen cases, the procedure has proved very successful with additional excellent cosmetic outcomes.

Copper’s eyelids were just fine, as was his heart and respiratory system as examined by the teaching hospital’s cardiovascular team. An indication, maybe, that Copper will enjoy the glory of pasture again after him as long as he remains pain free and happy.
The Development Team Begins the Last Year Of the For All We Call Mizzou Campaign

The MU College of Veterinary Medicine’s For All We Call Mizzou efforts are coordinated by Greg Jones, director of development (left). Greg was born and raised in Springfield, Mo. He is a graduate of the MU Business School and Washington University, Law School where he graduated in 2000. He owns a mixed-breed dog named Lily who was rescued from a St. Louis pound. He has two daughters, Riley and Maven. Greg is assisted by Kevin Largent, development officer (front). A Sikeston, Mo. native, Kevin has been part of MU’s development work for more than three years. He became acquainted with the MU Veterinary Medical Teaching Hospital when he brought his eight-year-old bulldog for cancer treatment. Lisa Jones (rear) is the college’s special events coordinator, and oversees the planning of the annual Gentle Doctor Benefit. She worked in early childhood education before coming to the college. She has two dogs and numerous cats — she wouldn’t reveal how many. She also has one-year-old son Eli. Kim Bussard (right) is the team’s administrative assistant. A Columbia, Mo. native, she has three children — Cooper and Morgan. She calls herself a cat named JR. You can contact the team at 573/882-0548.

The Final Stretch

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The MU College of Veterinary Medicine’s For All We Call Mizzou campaign will officially end Dec. 31, 2005. “It’s critical that the college achieve its Mizzou goals,” Greg reports. “While the college has made impressive gains in creating student scholarships, it is still fighting increasing costs and declining state funding. New facilities will be needed to help future students flourish — particularly in the critical area of modern imaging equipment. “New programs will promote even higher levels of discovery and service in such areas as animal agriculture, companion animal medicine and modern veterinary education — providing even higher levels of service to Missourians and making students even more capable in their professional careers.”

We Call Mizzou

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