



Center for Companion Animal Health, UC Davis School of Veterinary Medicine

CAAH Update

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Greetings from CCAH Director Niels C. Pedersen

Perceptions of avian and exotic pets are changing

Dear CCAH supporters:

This edition of *CAAH Update* focuses on small companion animals other than dogs and cats – avian and exotic pets. Based on personal experience, I have come to view pets not by species, but by their owners' perception of them. An individual pet enjoys a primary, secondary or tertiary status in the home based on this perception.

Primary pets can be likened to a family member, a close companion or even a child substitute. Primary pets are afforded a level of veterinary care that is comparable to the medical care given to family members, and grief may be significant upon their death.

Secondary pets are fed and housed with respect and receive basic but not extraordinary levels of veterinary care. Grief upon their passing is not as intense.

A tertiary pet is much more expendable; it is well fed and cared for, but rarely receives significant veterinary care, and grief may be minimal.

Many people see dogs as the principal primary pet, cats the most common secondary pet, and animals like birds and fish as tertiary pets. However, the status of various pets has changed with time, and also varies greatly from one person or family to another. Cats are much more likely than ever before to be the primary pet, but dogs still reign in this category. Likewise, avian and exotic pets progressively have increased in popularity over the past two decades, and many of them now enjoy the

same level of emotional and financial commitment from their owners as a dog or cat.

I hope that you will enjoy this glimpse into the world of avian and exotic pets from the perspective of veterinarians who have dedicated their lives to keeping them healthy. Although avian and exotic pets can come from virtually every class of the animal kingdom, we have concentrated this *Update* edition on those most likely to be encountered in a modern veterinary practice. These are the species that are obviously closest to the hearts of people, as judged by their willingness to seek the best available veterinary care.

Please forgive me if your favorite avian or exotic pet is not mentioned, but I can assure you that our veterinarians see a range of pets that is unbelievable to the average cat and dog owner. I hope that you enjoy this brief exposure to our Companion Avian and Exotic Pet Service. I invite you to learn more at www.vetmed.ucdavis.edu/vmth/small_animal/cape/default.cfm on the Web.

Niels C. Pedersen, DVM, a professor of veterinary medicine and epidemiology, is director of the Center for Companion Animal Health and director of the UC Davis Veterinary Genetics Laboratory.

Behind door No. 3: The appeal of exotic pets

Many veterinary offices have two doors – one for owners of dogs, the other for cats. But a third door is becoming increasingly necessary. Behind door number three you may find a remarkable variety of avian, mammalian, aquatic, amphibian and reptilian species.

The American Pet Products Manufacturer Association (www.appma.org) has estimated that 11 million reptiles, 17 million birds and more than 18 million small mammals are kept as pets in the United States. About 15 percent of American households are home to at least one exotic pet.

Many owners of nonconventional pets appreciate the beauty and behavior of exotic animals – the brilliant coloring of a snake's scales, the eating habits of a frog or

the ability of a parrot to mimic sounds and human speech. For some pet enthusiasts, the presence of exotic species may fulfill a need to coexist with the natural world.

"The natural behaviors of a species can be a point of fascination for many exotic pet owners," observed Dr. Joanne Paul-Murphy, a veterinary professor in the UC Davis Companion Avian and Exotic Animal Service. "Tortoises, for example, are not cuddly, don't wag their tails or ordinarily run to greet you. But they are sweet, curious, intriguing and enjoyable to watch and spend time with."

She added that she has three pet tortoises that are very social.

Continued on page 2

Appeal of exotic pets *from page 1*

"When I go out in the backyard they literally run over to greet me. I can put out a plate of food, but they are more interested in getting attention from me. I pet their heads and their shells and they relax. They have wonderful personalities," Dr. Paul-Murphy said. She added that many bird species are intelligent.

"Birds can actually talk to their owners. Because of that, I think birds can function as service animals for people who need to have a friend to talk to," Professor Paul-Murphy observed.

Dr. Michelle Hawkins, chief of the UC Davis Companion Avian and Exotic Animal Service, observes that the bonds between people and exotic species have evolved and matured.

"A century ago, many people who kept caged birds regarded them as part of the furniture and home ornamentation, without forming much of a human-animal bond. That has changed dramatically as these pets are now commonly considered a primary member of the household," Hawkins said.

Pet owner Jack Hayes has two birds that are integral members of his household. His 25-year-old female harlequin macaw, Tyson, and 24-year-old miniature macaw, Tana, stay in a 6-by-5-by-4-foot



Koi enthusiasts become as attached to their fish as dog and cat fanciers do to their furry friends.

cage in the backyard during daylight hours in good weather.

"At sunset they squawk for us to bring them inside for the night," said Hayes, who also has two dogs who have established an "understanding" with the birds. "In their only encounter, Tyson bit Sam on the nose, and Sam now has a healthy respect for anything with wings," Hayes said.

UC Davis veterinarian David Sanchez-Migallon Guzman says that animal lovers find the intelligence, behavior and responses of animals captivating.

"Many owners are fascinated by interactions with their pets, with the ability of animals to respond to their stimulations," said Dr. Guzman, a clinical faculty member with the Companion Avian and Exotic Animal Service.

UC Davis veterinarian E. Scott Weber III, an expert in aquatic animal health, says that koi enthusiasts become as attached to their fish as dog and cat fanciers do to their furry friends.

"Koi hobbyists become extremely attached to their fish. Some train their fish or exhibit them at shows. Some koi become so comfortable with their owners that they feed from their hands and allow themselves to be touched," said Dr. Weber, who has known owners who have invested as much as \$100,000 in elaborate koi pond construction.

Regardless of the species or the reasons people choose to live with them, each has distinct needs that require knowledge and understanding.

New wellness and welfare program opens

The Companion Avian and Exotic Animal Service has just launched a new service: the Exotic Animal Wellness and Welfare Program, which incorporates pet owner education with pet health care.

"The Wellness and Welfare Program is a service encompassing wellness examinations and programs regarding all aspects of preventive health care for exotic pets," said Dr. Hawkins. "Our service also focuses on providing quality of life consultation and therapy for debilitated and geriatric animals."

Pet owners check in at the CCAH reception desk for Exotic Animal Wellness and Welfare appointments.

Veterinary acupuncture is among the innovative services that CCAH has introduced for exotic animals, as well as for

dogs and cats. Exotic Animal Wellness and Welfare Program faculty veterinarian Marilyn Koski trained in veterinary acupuncture at the Chi Institute of Chinese Medicine in Gainesville, Fla.

"The new Wellness and Welfare Program promotes client education and improved communication by encouraging veterinarians and students



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The Center for Companion Animal Health (CCAHA) is dedicated to advancing studies in veterinary medicine – encompassing new ways to prevent, diagnose and treat diseases including cancers, genetic and immune disorders, infectious diseases, kidney and heart diseases, and nutritional disorders in companion animals.

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Dr. Joanne Paul-Murphy examines a tortoise. Photo by Don Preisler.



Dr. Michelle Hawkins examines a rabbit.

to work with pets in the presence of clients,” Dr. Koski explained. “This model also enables our veterinary students to better understand how exotic animal pets can be competently treated in the private practice setting.”

Considerations before acquiring an exotic pet

Many avian and exotic species are considered to be wildlife and cannot be kept as pets. California imposes far greater restrictions than some other states on private ownership of exotic species. See the article on the back page for information on California permits and licenses.

If you’re thinking about bringing a permissible exotic animal into your home, first ponder these important considerations:

- **Housing:** You must be able to furnish an appropriate environment. “It’s very easy to walk into a pet shop and buy a lizard for \$15 and an inexpensive tank, but its proper care may require investment of several hundreds of dollars in equipment and veterinary care,” Dr. Hawkins observed.”
- **Nutrition:** Different species have specialized nutritional requirements that may be difficult to fulfill. Learn the nutritional needs of your prospective pet. “For example, the seeds available in North America are very different from the natural vegetation found in the South American, Australian or African environments that are native to these exotic birds,” Dr. Paul-Murphy ex-

plained.

- **Lighting:** While some animals thrive in a darkened environment, others may need plenty of exposure to sunlight, or special lighting of a particular wavelength. Dr. Guzman noted that inadequacy of ultraviolet light can lead to nutrient deficiencies in a variety of species. “Reptiles need a spectrum of light that includes specific ultraviolet wavelengths in order for them to synthesize their vitamin D,” he explained.
- **Climatic conditions:** The temperature and humidity of the natural habitat of exotic animals must be replicated in captivity. “For example, to provide an appropriate captive environment in your home for a green iguana you will need to simulate the heat and humidity of Costa Rica, even though you may live in an arid, cool location,” Dr. Koski observed. “If we put iguanas outdoors in arid California to increase their temperature, they dry out like raisins, which can lead to kidney disease,” Dr. Hawkins explained. For especially sensitive species, owners should consider buying a battery backup unit to supply energy during electrical power failures.
- **Life span:** Acquiring a tortoise or some bird species may involve a long-term commitment, because they may have life spans of 60 years or more. “Macaws may live as long as humans do, so including them in your will or trust is important,” observed bird owner Jack Hayes.
- **Exercise:** Physical activity is essential for the health and welfare of all animals. While many exotic animal species can survive their lifetimes in cages, many require additional space to exercise and thus require periods outside their contained environment for recreation and physical activity.

Owners must learn about the particular needs of their exotic pets, and be willing to devote time and financial resources to cater to these needs.

“Some animals, for example, hibernate and need to be sheltered in the colder months,” Professor Paul-Murphy said.

Aquarium owners also must take great care to simulate the natural environment of their pet underwater animals. That, Dr. Weber advises, requires thorough research – especially for novice fish enthusiasts.

“I encourage people to conduct a lot of research about lighting, substrate, water quality and nutritional needs before setting up a new aquatic tank,” Professor Weber said. He has begun developing an aquatic animal medicine program to expand instructional and health care offerings at UC Davis for pet aquatic animals.

Dr. Weber observed that many aquatic animals that are sold as pets are caught in the wild.

“People need be aware of sources of fish because some species are endangered. I encourage people to buy only from reputable pet shop or breeders. And if you are buying from an individual, perform a background check,” Dr. Weber suggested. Legitimate breeders should have a seller’s permit.

Dr. Guzman said that the responsibilities of exotic animal ownership encompass nutritional, housing and medical requirements.

“Owners must provide the right environment, sufficient stimulation and appropriate health care through routine visits to an experienced veterinarian for each exotic pet to have the best quality of life,” Dr. Guzman said. Those are part of the responsibilities of ownership. Like all pets, these animals really are dependent on their owners to provide the best quality of life.”



Dr. Guzman with Melanie, a Moluccan cockatoo. Photo by Don Preisler.

Exotic animals may conceal illness

While pet owners easily recognize signs of illness for cats and dogs, clues can be elusive in exotic species.

“Many exotic species that people favor as pets are prey animals, meaning that they are far down in the food chain in the wild,” observed Dr. Michelle Hawkins, who is chief of the UC Davis Companion Avian and Exotic Animal Service and a board-certified specialist in avian medicine and surgery. “Consequently, they mask signs of being sick until very late in disease. By the time owners recognize that they are sick, they are often quite ill, so we do a lot of critical-care treatment.”

Because the signs of illness may be subtle, and may not be evident until very late in the disease, routine wellness exams and diagnostic testing are essential to the health of exotic pets. UC Davis Exotic Animal Wellness and Welfare Program veterinarian Marilyn Koski encourages periodic physical examinations for all pets of all species.

“Every newly acquired pet requires an examination by a veterinarian, as well as annual checkups,” Dr. Koski said.

In addition to routine health care, proper husbandry is another keystone in having a healthy exotic companion. Many exotic species have very specific dietary and housing requirements, and significant diseases can result when they aren't met. Dr. Koski and some of her colleagues are launching a series of instructional seminars to help owners learn how to care for their exotic pets. This education will also take place during examination of pets

with the Exotic Animal Wellness and Welfare Program.

The connection between husbandry and disease even extends to aquatic pets. Dr. Scott Weber, an aquatic specialist with the Companion Avian and Exotic Animal Service, says that aquarium fish are subject to infectious diseases that often relate to problems in husbandry.

“Environmental or water quality problems commonly cause infectious disorders. Other husbandry-related problems are associated with deficiencies in nutrition and general care,” said Professor Weber, who was the head veterinarian of the New England Aquarium in Boston before joining the UC Davis faculty in 2007.

UC Davis clinical services

Routine wellness examinations and husbandry consultations with your veterinarian are the key to the health of your pets, and are especially vital for exotic pets. The Companion Avian and Exotic Animal Service and Exotic Animal Wellness



Dr. Scott Weber examines a seahorse during treatment at the Aquatic Fish Service, part of the Companion Avian and Exotic Animal Service. Photo by Don Preisler.

and Welfare Program perform scheduled clinical care Monday through Friday by appointment.

The Companion Avian and Exotic Animal Service also offers emergency care 24 hours per day for our patients. However, your exotic pet must have been seen by one of our exotic pet services within the previous year in order to take advantage of our 24-hour emergency service. Simply having your pet examined by either the Companion Avian and Exotic Animal Service or our Exotic Animal Wellness and Welfare Program will ensure that your pet will receive the benefit of our 24-hour care program.

To schedule appointments, please call 530-752-1393.

It's a Fact

The UC Davis School of Veterinary Medicine offers a three-year residency program to give veterinarians advanced, specialized training in exotic animal medicine. Residents who successfully complete this program can become board-certified exotic animal specialists.

Common exotic animal pets in the U.S.

A definitive ranking of the most popular exotic pets in America is difficult to compile because ownership figures are elusive and imprecise. Individual states may restrict or prohibit the ownership of some of the listed species (see California exotic pets laws on the back page). Consult an experienced exotic animal veterinarian before considering the purchase or adoption of an exotic animal.

Here is a list of the overall most common exotic animal pets in the United States.

- **Mammals:** ferrets, guinea pigs, rabbits, rats, hamsters, mice, chinchillas, sugar gliders and hedgehogs
- **Birds:** cockatiels, budgerigars (“budgies”), canaries, conures, parrotlets, Amazon parrots, African grey parrots, cockatoos, macaws, pigeons, ducks and chickens
- **Reptiles:** snakes (boa constrictors, pythons, colubrid species), bearded dragons, iguanas, chameleons, box turtles, red-eared slider turtles and tortoises
- **Amphibians:** frogs and toads
- **Fish:** freshwater ornamental species (goldfish, koi), saltwater ornamental species

Meet donor Marcia Messmer

Devotion to guinea pigs leads to ardent support of CCAH

When Marcia Messmer's son Matt first picked up the car keys as a teenager, he turned to his mother to care for his pet guinea pig for which he no longer had sufficient time. That opened the door for what would become an enduring passion for Marcia Messmer.

Fascinated by the pet and its habits, she began to acquire more of the little animals, eventually building her herd to six shorthaired males, all of the American breed. Her senior boar, Mr. Dutch, is of the "red Dutch" variety. Cookie Dough, the heaviest of her animals with a weight of almost 4 pounds, is a mottled Dalmatian variety. Macchiato is named after the coffee drink. Possum is a silver agouti. Gordon is the color of a yellow Labrador retriever. Baby Bigg, a "silver solid" variety, has a dark salt-and-pepper coat of hair.

Messmer devotes much of her day to her pets, which range in weight from 2 to nearly 4 pounds.

"Each guinea pig sleeps in an individual cage bedroom. In the morning, I take them all out and put them in a large 'turnout' pen in the kitchen. They enjoy watching me as much as I enjoy watching them," Messmer said.

"After they eat a breakfast of greens, vegetables and hay, I give them vitamin C and they play with toys. Later I pick everybody up, wash their hands and faces, then put them back in their cages for a rest. They live in my kitchen, and they're a part of my family," Messmer added.

She takes them for walks outdoors in a dog stroller that she modified by dividing it into caged sections.

"That helps avoid disagreements," Messmer explained. "They feel secure because the stroller has a net."

Although Messmer doesn't exhibit her guinea pigs at competitive shows, she does show them off in costumes – consisting primarily of hats and neckerchiefs – that she fashions for them. She has made nearly 2,000 guinea pig hats during the past 10 years. Her creativity has led to a business enterprise. Working with portrait photographer Jennifer Baciocco, she designs elaborate sets and has begun producing whimsical pictorial calendars (available at www.guineapigcalendar.net).

"My goal is to encourage people to see guinea pigs as pets that are just as deserving as dogs and cats of excellent veterinary care," Messmer explained.

Her search for competent veterinary care brought her to UC Davis, upon the recommendation of an uncle of hers. She routinely drives 100 miles from her home in Woodside to UC Davis for veterinary care. She is so impressed with the care that her pets receive that she has become

a devoted contributor to CCAH and to research projects conducted by veterinary faculty members.

The guinea pig (*Cavia porcellus*) is not related to pigs, nor did it originate in Guinea or New Guinea. It is a rodent species with roots in the Andes range of South America, where it has been used as a food source. The animals' widespread use as a model for physiological studies beginning in the 19th century gave rise to use of the term "guinea pig" as a connotation for any test subject.

"Guinea pigs are special animals that deserve compassionate veterinarians who have dedicated their careers to caring for exotic pets," Messmer said. "I had been to other veterinarians, but a dog or cat vet who sees guinea pigs only occasionally may not recognize conditions that need attention. I'm a big promoter of veterinarians who specialize in exotic pet care. That's why I support the pain relief study work of Dr. Michelle Hawkins to the extent that I can."

In addition, Messmer funds an annual scholarship for a UC Davis veterinary student through the Achievement Rewards for College Scientists organization.

It's a Fact

Over-the-counter flea medications for dogs and cats may be potentially harmful to many exotic animal species.

Consult a veterinarian with expertise in the care of exotic species regarding the use of any over-the-counter medications.



Marcia Messmer and her elegantly attired guinea pigs (courtesy of Jennifer Baciocco Photography).

Contributions support the Center for Companion Animal Health

From July 2009 to June 2010, more than 5,400 donations helped the Center for Companion Animal Health continue its mission to improve animal health and well-being. We know that behind every gift is an animal story, a caring owner and an intent to advance the health of our companion animals.

All of us at CCAH are grateful for the generosity of these donors.

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Photo by Don Preisler

From left, third-year resident Ashley Zehnder, Dr. Marilyn Koski and veterinary technician Jacquelyn Ashby treat one of 13 tortoises that were severely burned when their plexiglass enclosure caught fire. The eight African spurred tortoises that survived were brought into the Companion Avian and Exotic Animal Service clinic for treatment.

Finding new homes for exotic species can be difficult

People sometimes must relinquish an exotic pet because it has grown too large, or due to relocation to another home that cannot accommodate the pet. Finding a new home for an unusual pet may be very difficult, however.

Under such circumstances, some pet owners yield to the temptation to turn the animal loose in the wild – an illegal practice that poses potential danger to other people, to the environment and especially to the animal, which will be unaccustomed to survival “in the wild” – especially when “the wild” is an urban environment very far from the original habitat of the animal. Exotic animals can carry diseases that may be new to an area, they

may injure or kill other animals if they are carnivorous, or they can die of hunger without knowing how to hunt for food in a foreign environment.



Hyacinth macaw
Photo by Don Preisler.

Dr. Marilyn Koski, a veterinarian in the UC Davis Exotic Animal Wellness and Welfare Program, says that zoos are reluctant to accept donations of exotic animals from individuals because of the potential for the spread of disease to the zoo's animal collection, or in some instances to the human staff. She urges pet owners to contact a veterinarian or rescue organization for assistance, but she also stresses that most rescue organizations are at capacity and cannot accommodate more animals.

“Before acquiring an exotic animal pet, potential owners should carefully consider the commitment required for the lifelong care of the species,” Dr. Koski added.

Research the species you wish to keep, well before you actually acquire the pet. Carefully consider not only the immediate care needs, but what its needs will be a few years from now.

Will it grow, and how big? Will its diet change? How long does it live? Does it need a lot of interaction? What is its personality? If it becomes ill, can I spare the time and expense to care for it? If something happens to me, would a friend or relative be comfortable with caring for my pet?

Answering these questions honestly can help you to select a pet appropriate for your lifestyle, and avoid the pain and frustration of having to locate a new home if things don't work out.

Zoonotic diseases

Exotic animal ownership poses health risks

Owners of any pet should be aware of the risks of zoonoses – diseases that are communicable from animals to humans. The American Society for the Prevention of Cruelty to Animals (ASPCA) warns that exotic animals can infect humans with dozens of serious or even potentially fatal bacterial, fungal, viral and parasitic diseases. While many of these same diseases also could be contracted from dogs and cats, exotic animals are still commonly imported into the pet trade, and so could potentially be infected when purchased even from reputable breeders or pet stores.

Dogs and cats have been domesticated for centuries, and these pets generally have frequent veterinary wellness exams and vaccinations to help reduce these diseases. Because

of that distinction, exotic pets must receive consistent veterinary examinations to try to identify diseases before they affect the animal, and possibly their human caretakers.

One of the most common zoonotic diseases identified in exotic pets is salmonellosis. One in three reptiles carries a strain of salmonella, according to a U.S. Fish and Wildlife Service estimate. Salmonella bacteria can be part of the normal gastrointestinal bacteria for reptiles, but can cause diarrhea in humans that come in contact with the reptile's feces.

“Reptile owners should wear gloves and wash hands after each handling of their pet, and caretakers should not allow small children to handle reptiles,” warns Michelle Hawkins, chief of the UC Davis Companion Avian and Exotic

Animal Service.

“Psittacosis is another bacterial disease that some birds can carry, with potential for transmission to humans. That is a significant reason why we encourage new bird examinations in our wellness and welfare program,” explained Dr. Hawkins, a UC Davis associate professor of veterinary medicine and epidemiology. “In addition, some diseases can exert a reverse zoonotic effect – human influenza can be transmitted to pet ferrets, for example.”

Humans may contract mycobacteriosis, also known as “fish handlers' disease,” through open cuts in their hands. Symptoms may include

pain, burning, itching and joint stiffness. Aquatic veterinarian E. Scott Weber III of the Companion Avian and Exotic Animal Service says the resulting infection leads to development of a non-healing ulcer, so early detection by your physician and treatment with antibiotic medication are important.



One in three reptiles carries a strain of salmonella. Reptile owners should wash hands after each handling of their pet.

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Know the California exotic pets laws

Ownership of many exotic species is susceptible to legal restrictions. While the U.S. Fish and Wildlife Service regulates endangered and threatened animals, and the U.S. Department of Agriculture oversees exhibition of circus and zoo animals, laws regarding exotic pets vary among states. Some states have few, if any, restrictions on ownership of exotic ani-

mals, but California has enacted some of the strictest regulations in the nation.

The exotic animal laws of most states target animal cruelty, and seek to protect human health and prevent escape of exotic species to the wild, where they may cause environmental or economic harm.

The California Department of Fish and Game advises that generally speaking, when shopping for a pet, if an animal is for sale in a California pet store, feed store or livestock auction, it's safe to assume it's permissible as a pet in California.

California prohibits importation, transportation or possession of specified live restricted animals without a permit issued by the California Department of Fish and Game. California counties and cities have legal authority to impose their own additional restrictions. The list of animals banned from private ownership by California Code of Regulations Title 14, Section 671, is extensive.

The list of prohibited species encompasses:

- **birds** – including crows, ravens, black-birds, waxbills, falcons, hawks, eagles, vultures and owls
- **mammals** – including anteaters, armadillos, hedgehogs, lemurs, muskrats, squirrels, gerbils, prairie dogs, raccoons, weasels, ferrets, wolves, primates, and exotic dog and cat species
- **amphibians** – including giant toads, mole salamanders and neotropical frogs
- **fish** – including bony fishes (bass, perch and shad, for example), piranhas, freshwater eels, sharks and stingrays
- **reptiles** – including crocodiles, alligators, snapping turtles, cobras, coral snakes and reticulate Gila monsters

For information on California permits and licenses, visit the California Department of Fish and Game website at <http://www.dfg.ca.gov/licensing/> or call 916-928-5805.

It's a Fact

The UC Davis School of Veterinary Medicine hosts an Avian and Exotic Animal Medicine Club that encourages veterinary students to learn about exotic companion animal health, medicine and surgery and to gain technical skills in working with these species.

