

Eagle's eye view: Veterinary ophthalmologist documents 'normal' in birds of prey

By Kristi L. Nelson

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When Dr. Diane Hendrix shines her light and gazes into the gold-flecked eyes of a bald eagle, she sees more than rods and cones, retinas and corneas.

She sees an opportunity to, for the first time ever, establish "normal" parameters for the eyes of raptors, so that when the majestic birds of prey — wild or captive — come to the University of Tennessee Veterinary Medical Center for treatment or checkup, she'll have a better idea of how their eyes should look.

Hendrix, an ophthalmologist who treats every kind of animal but human, spent four days this week giving extensive eye exams to 16 bald eagles from Dollywood's American Eagle Foundation. They were due for their annual physicals, during which UT veterinarian Dr. Michael Jones, an avian specialist with a passion for birds of prey, and his staff "examine their bodies from the tip of their beak to the end of their tail feathers," Jones said. It's done in fall, before the eagles begin breeding.

That annual exam, which the 40-odd bald eagles at the foundation will have, doesn't usually include such an intense look at the eyes. But when it comes to studying vision, the large raptors have a lot to offer: the best vision known of any animal, Hendrix said.

Yet the eagles have a particular vulnerability: cataracts, when the lens of the eye becomes cloudy. Hendrix can perform cataract surgery to remove the lens on large birds just like on dogs or cats, and she knows they can see better afterward, because "they try to 'get' us faster" with their beaks and talons, she said.

But while a dog or cat — or a person — can then get a plastic lens implanted, those aren't made for birds, Hendrix said. The measurements she and others took this week might allow her to call a company that manufactures lenses and order one to spec. While there are isolated incidents of trying lenses on birds — a hawk here, an owl there — Hendrix and Jones want a standard of care.

Hendrix found cataracts in five of the eagles she saw this week, but none severe enough to warrant surgery yet. Jones, the birds' regular veterinarian, will monitor their progress.

In the wild, raptors live 10-20 years, Jones said, and their cataracts usually are caused by trauma: flying into objects, fighting with other birds or animals, getting hit by cars or "even gunshot, still, if you can believe that," he said.

But Hendrix suspects many of the foundation's birds, which range at least to mid-30s in

age, may simply get age-related cataracts. Most are in captivity because they can't, for whatever reason, safely fly.

That doesn't mean they're sedate old birds; those powerful beaks can tear out chunks of flesh, and they will, given a chance. It took an experienced veterinary technician — Nancy Zagaya, formerly with UT and now with the foundation — to catch and still the big birds with an arm-wrap, a hand around the fluffy feathers at the throat, keeping them calm and still while vets photographed their eye structures, tested tear production and checked for glaucoma. Only for the last part of the hourlong visit was each eagle sedated; the electroretinography test, used to detect abnormal function of the retina, the part of the eye that detects light, requires they be perfectly still.

"I've been waiting years to do this" on a large enough number of birds to determine "normal" eye ranges, Hendrix said. "Their eyes are phenomenal. The birds are phenomenal. There's definitely a 'coolness' factor. But it's not cool if it's not useful."

Now, when injured wild birds come into the hospital, she can compare their eyes against these "normal" ranges. When falconers bring in their pets, she'll be able to tell if they have a detached retina before she bothers to put them through cataract surgery.

It's a good feeling, returning power to such a strong, predatory creature. Hendrix recalls an eagle at the foundation. Nearly blinded by cataracts, he was hiding under ledges and brush. He wasn't eating.

After the surgery, "he was feisty again, like a bald eagle should be," she said, laughing. "He tried to kill us on multiple occasions."



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