



Desiree Haneman

## Spring 2010 Edition

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## New Exhibit to Feature LEGO® Bricks

New "species" of our most endangered animals will soon be appearing throughout the Zoo garden. These life-size plastic sculptures, dubbed *Creatures of Habitat: A Gazillion-Piece Animal Adventure*, will help to convey our all-important conservation messages in a unique and interactive way.

Amphibians, the most endangered animal group in the world, will be represented by a giant-scale LEGO® brick harlequin frog mounted on the Reptile and Amphibian House. Featured will be Curator Dr. Carlos Martínez's work in South America to rescue and breed species of frogs in an effort to combat the fungus chytrid and other threats to amphibian survival.

Humans compete with Humboldt penguins for fish, contributing to a critical problem of over-harvesting of fish. To bring awareness to this issue, a group of five life-size LEGO®

brick Humboldt penguins will be displayed near the penguin exhibit in front of the Poitou donkeys.

Life-size LEGO® brick murals of the lowland gorilla and Sumatran orangutan will have open-face spaces where guests can appear for photo-ops at PECO Primate Reserve. The exhibit will focus on the problem of deforestation and the Zoo's support of the Kinabatangan Orang-utan Conservation Project.

Near the Children's Zoo, next to the colobus monkey (formerly baboon) exhibit, are 3-D terrapins, trying to cross the road in front of a car. The exhibit will convey the plight of the 1,000 terrapins that die each year attempting to cross the roads along the Jersey shore to reach their nesting sites. Crab traps kill more than 14,000 terrapins.

(Continued on page 7)

## Thanks to Maria and Sue, Orangutan Family Thrives

The birth of Batu, the Sumatran orangutan, on October 2, 2009 marked a milestone for the Zoo as the first birth of a great ape at PECO Primate Reserve. To Maria Schwalbe, primate keeper, the birth was an answer to her dream. "In fact," she says, "the name we ended up using was the name I had picked out years ago upon the opening of the building in anticipation of this eventual birth." To Maria and Sue Isackson, RVT, Senior Vet/Lab Technician, the birth marked the end of a three-year journey of observations, research, tests, training and preparation. The first step of this journey was the arrival of Sugi, the male orangutan, with the SSP recommendation for breeding.

**Maria:** "Once Sugi completed his quarantine, Sugi and Tua were good to go. At that point we were just letting nature take its course, but then we realized that at the time Tua should have been giving birth if she were pregnant, she was actually starting a regular menstrual cycle. Shortly thereafter, we started tracking everything more specifically to see if we could get a handle on why what we thought we were seeing was not what was happening."

**Sue:** "November through December 2007 pointed out how little we knew about what was going on with Tua at that stage. We decided we needed to know more."

**Maria:** "It was a constant work in progress. We collected work from the SSP only to learn that although there was an entire manual on orangutan husbandry containing a section

on reproduction, everything was general. The specific details we needed weren't there."

Coming from two different directions but desiring the same answers, Maria and Sue set out to obtain a good baseline of information for Tua and were able to collect their own data.

**Maria:** "With my ability to work with Tua and Sue's inside track on the lab part, we were able to start to formulate a hypothesis about what we were observing and what her hormones were telling us."

**Sue:** "It was informative to have Maria's observations on behavior to correlate with the data we were seeing on urinalysis. If Maria observed copulation and then we saw sperm in the urine, we knew that it was a good sign. By gauging Tua's cycle and knowing what an average cycle was, we could then narrow down when ovulation might be occurring and try to see if the behavior Maria was observing was complementing the lab side. We worked closely together, meeting frequently."

**Maria:** "Initially, we just wanted to know why Tua wasn't pregnant when we assumed she was. We knew it would continue to be a 'shot in the dark' diagnosis unless we obtained reliable information on what was normal for her and what was not."

(Continued on page 6)

## From the Desk of the Docent Council President

Dear Docents:

At the beginning of the new year, one of my conservation projects involved repurposing an extra daily planner into a daily nature calendar of my backyard. I find I enjoy stopping for a moment to "tweet" on paper what is happening, as well as recording the temperature that was stuck on 25 degrees for many days. Coming into the Zoo one very cold Saturday, I found myself also pausing to see the activity of docents around me. We are certainly not "stuck" or hibernating! The docent office was abuzz with weekend and weekday docents ready to report to their Open House assignments or returning from Night Flights. Upstairs the board room, which had just been vacated by our board members for a monthly meeting, was being set up to review Zoo slides by the Horticulture Committee. They were looking for pictures of our tree collection. These activities are a small indication of how dedicated our membership and our 27 committees are to the Zoo.

Our commitment as docents does not stop at the North Gate. Many committees have activities that take us out into the community. The slide committee often goes to retirement communities that have difficulty bringing residents to the Zoo. The Junior Nature Journey committee plans activities for children and their families off-site. Our Service Learning Project, Return the Call of the Wild, involves four teams of docents working with middle school students to help them understand the need to recycle cell phones and help them to connect to our outreach conservation project at the Endangered Primate Rescue Center in Vietnam.

In the name of the Docent Council several of our weekday and weekend groups have extended volunteering beyond the Zoo boundaries. The Monday docents have taken on a mentoring project with McMichael School, the Philadelphia elementary school nearest to the Zoo. They

are reading to the kindergarteners and donating the books, giving lessons to the fifth graders on conservation and planning a project for the school's courtyard which will help to draw butterflies and birds. The Wednesday docents are also interested in collaborating with McMichael.



Tuesday and Wednesday docents have a yearly commitment to the Ronald MacDonald House in West Philadelphia. Going in uniform, they provide the food, prepare the meals for families and clean up. This all takes the better part of a day and evening. They often go with biofacts and sometimes the face painters. Docents will all tell you that it is a very rewarding evening and are quick to sign-up for the next year. In fact, the weekend docents, having heard about this activity, are now in the process of organizing their own day of giving at RMH. In addition, we have a pop tabs collection jar in our docent office to support our local Ronald McDonald House.

Finally, we are looking forward to an extended trip planned by the GetAway Committee, which will involve a working volunteer component related to one of our Zoo's Conservation Projects. Whether it is in the Garden or out in the wider world, docent volunteering is always growing. Thank you for your dedication.

*See you in the Garden!*  
-Janet Krevenas



### GREEN CENTRAL

**DID YOU KNOW THAT EACH AMERICAN CONSUMES, ON AVERAGE, 2,200 STANDARD TWO-PLY PAPER NAPKINS PER YEAR, OR THE EQUIVALENT OF JUST OVER SIX NAPKINS PER DAY, ENOUGH TO FILL THE EMPIRE STATE BUILDING? NEXT TIME YOU GRAB A HANDFUL OF PAPER NAPKINS FROM A CONCESSION STAND, ASK YOURSELF THIS QUESTION, "DO I REALLY NEED ALL OF THESE PAPER NAPKINS...?"**

**MORE THAN 115 MILLION ACRES OF FOREST, CURRENTLY FOUND IN SIXTY-ONE COUNTRIES AROUND THE WORLD, HAVE RECEIVED CERTIFICATION BY THE FOREST STEWARDSHIP COUNCIL (FSC). LOOK FOR THE "FSC" STAMP WHEN PURCHASING WOOD PRODUCTS. SOURCE: THE GREEN BOOK 2007**

*-INFORMATION COMPILED BY FRAN TURLINSKI*

## Keep Your Eyes on the Aye-Ayes

The Zoo recently welcomed two aye-ayes, a (hopefully) breeding pair, to the PECO Primate Reserve (PPR) and became one of only three zoos in North America to have aye-ayes in their collection. Wait - what is an aye-aye, anyway? An informal survey yielded answers that included "something a pirate says" and "a gazelle." One of my co-workers (a mammalogist by training) correctly identified an aye-aye as a "primate with a long middle finger."

Aye-ayes, whose name is presumably derived from their alarm call (a "hai-hai" or "hay-hay" vocalization), are lemurs and are native to Madagascar. Like most lemurs, aye-ayes are nocturnal and have the wide, staring eyes of a cartoon character that was just struck by lightning. But what makes an aye-aye unique among its prosimian kin? Aye-ayes are the largest nocturnal primates in the world and are one of the few primates that lead a solitary life. Their big ears and large bushy tails give them the appearance of a scruffy arboreal fox. And what about that middle finger, which can be up to three times longer than the other digits? Filling the niche of a woodpecker, they tap on the wood of tree branches, listen for insects moving around under the bark, gnaw a hole in the wood with their inch-long rodent-like front incisors, insert the slender elongated third digit into the hole, fish out the insects and then eat them. All of these features and behaviors come together to form a strange-looking, but oddly appealing, little creature.



Desiree Haneman

Tolkien and Medusa, our male and female aye-ayes, arrived at the Zoo in the fall of 2009. When asked about her first impression of the new pair, PPR aye-aye keeper Desiree Haneman said, "Tolkien likes to sleep on the ground and Medusa is always hungry." Appropriately, given their unusual appearance, they made their public debut in their newly constructed nocturnal exhibit in PPR right before Halloween 2009. Tolkien

(born in 2001) and Medusa (born in 2003) both came from the Duke Lemur Center but were not introduced prior to their arrival at the Zoo. Desiree said their introduction went well, with Medusa being relatively unimpressed with Tolkien and Tolkien running away from Medusa. This is normal behavior for aye-ayes, since males and females can coexist peacefully in captivity, but females take the dominant role in social relationships. Their personalities are also quite distinct. According to Desiree, Tolkien has some characteristics that are unusual for an aye-aye: he

prefers to sleep in a cardboard box on the ground and spends much of his time walking



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around on the ground, as opposed to the "normal" arboreal lifestyle of wild aye-ayes. He also adapted well to being on exhibit and seems to like people. Medusa, on the other hand, took a longer time to adapt to being viewed by guests. She prefers to spend her time off the ground and can usually be seen climbing on the tree-like metal structures in the aye-aye exhibit. Like wild aye-ayes, she sleeps in a nest in the "trees." At the Zoo, she has a nest box that she covers in bamboo to simulate a typical aye-aye nest in the wild. One of the more unique things about the aye-ayes that Desiree describes is the way that they eat certain foods. Given an orange or a soft-boiled egg, they will chew a tiny hole in the rind or shell and then scoop out the soft inside with their extra-long finger. Surprisingly, they do the same thing with grapes, scooping out the juicy interior and leaving the skin! Desiree can feed both aye-ayes by hand, but as you can imagine from the description of their feeding behavior, it takes a very long time. She says she is still getting accustomed to hand-feeding critters with such imposing teeth!

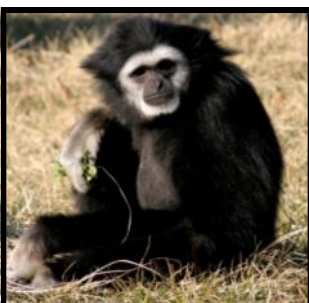
Aye-ayes are rare, not only in North American zoos but also in the wild. Because of their strange behavior and appearance, the Malagasy consider the aye-aye as bad luck and a harbinger of death. Therefore, aye-ayes are often killed on sight. In addition, they are sometimes killed because they can be agricultural pests, stealing coconuts, mangoes and lychees from villages and plantations. And finally, as with most animals who make their home in the rainforest, habitat destruction is also a threat. According to the International Union for the Conservation of Nature (IUCN), the aye-aye is considered "Near Threatened" and is perhaps not as rare as once thought. As Gerald Durrell stated in his 1992 book *The Aye-Aye and I*, "To allow such an astonishing and complex creature to become extinct was as unthinkable as burning a Rembrandt, turning the Sistine Chapel into a disco, or pulling down the Acropolis to make way for a Hilton."

-Beth Mescolotto

## Keeper's Corner: Maria Schwalbe

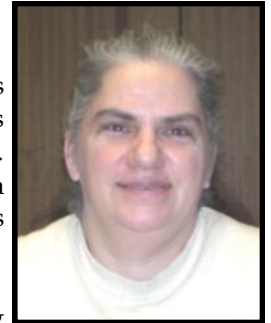
While growing up in upstate New York, Maria Schwalbe knew she wanted to work with animals. At college, a counselor suggested she become a keeper and directed Maria towards getting her Associates of Applied Science in Animal Management and Bachelors of Science in Zoology. Maria started her career as a keeper at the Utica Zoo in New York, and this May she will celebrate her 20<sup>th</sup> anniversary with the Philadelphia Zoo. She worked as an open relief keeper for less than a year before moving onto the primate team as a swing relief between the old Primate House and Rare Animal Conservation Center. At first she was trying to decide between primates and big cats, but once she met the orangutans her decision was made. Within a few years she became the orang keeper and has taken care of various other primates over the years. Currently she takes care of the orangutans, white-handed gibbons, northern tree shrews and ring-tailed lemurs.

When asked what her typical day was like, Maria responded, "There is no such thing as a typical day especially with orangs because they are so unpredictable. They are not animals of routine. Patience and flexibility are major assets when working with the orangs." Maria describes Tua as "a very independent, single-minded, stubborn animal, who likes to control the situation so she knows what is going to happen." Having learned to read Tua and knowing her behavior helps Maria develop plans to motivate Tua to do the things Maria needs Tua to do. And of course, there are times when Tua doesn't cooperate. Maria says, "Sometimes it's orangs - 1, keepers - 0; sometimes it's a tie; sometimes I get everything I ask for." She further explains that "orangs really seem to get it when it comes to trading as trading is an innate behavior for them." When working with the orangs, Maria uses their regular food or sometimes one of their more preferred food choices. But Maria has learned that Tua is a "junk food junkie." This is very helpful to know when it comes to emergency situations where Tua or Sugi may have something she needs to get from them, or she needs to have them move quickly inside. Both Tua and Sugi will cooperate when the right "goody" is offered. One time when they needed to have Tua come inside, "Skittles" was the solution.



Maria's daily objective is "doing everything it takes to keep the animals happy and healthy - physically, psychologically and mentally." To accomplish this, Maria has trained her animals in basic husbandry; they get on the scale, enter a crate and allow her

to inspect them. When special needs or requests arise, Maria adds additional training to her routine. Currently, Maria is working with Sugi to "let me collect saliva from his mouth without his taking the swab!"



Maria would like to continue tracking Tua's cycle with Sue Isackson, Senior Lab/Vet Tech (see "Orangutan Family Thrives" on page 1). They would like to ascertain a baseline for Tua just in case Tua gets another breeding recommendation in 6 plus years. This collection of data, they hope, will help them know what might be normal for Tua if she becomes pregnant again.

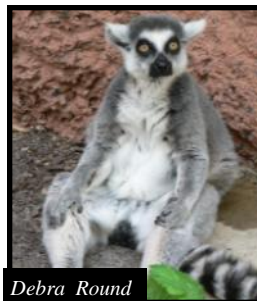
When asked about Batu's grip on Tua, Maria said it will take about a year before Batu will go from Tua's front to riding on her back. It will take up to 3 ½ years for her to be fully weaned. As Batu develops, she will become less dependent on Tua and will start exploring. This will, of course, depend on Tua's comfort level with letting Batu out of her reach. For now Batu doesn't leave Tua. Sugi has tried to be more interactive with Batu, but Tua is limiting his access. As long as he remains respectful of Tua's limits, all is well. Because Sugi had a good relationship with his own father, the expectation is that given the opportunity he will have a very good relationship with Batu.

Although the orangs keep Maria busy, she has others in her care as well. When asked to describe the personalities of her animals, Maria responded with the following: "orangs: Tua is independent, Sugi is a sweetheart; white-handed gibbons: Solstice is aloof, Mercury is mischievous; northern tree shrews: Katie is bold, Pete is shy; ring-tailed lemurs: Logan is patient, Iris is energetic, Kieran (new male) is cautious."

Away from the Zoo Maria enjoys camping and especially spending time at her family's cabin in the Adirondacks. She is an avid reader, enjoying a wide selection of subjects and authors. She has been embroidering since high school when a friend introduced her to this very rewarding hobby. Maria also enjoys a variety of music and loves to dance.

When asked where she expects to see herself in 10 years, Maria replied that she hopes to remain at the Philadelphia Zoo caring for her primates. We look forward to seeing Maria train Batu and possibly care for Tua's next precious bundle.

-Diane Defeo



Debra Round

## Staff Spotlight: Jerry Schrack

Jerry Schrack's grandfather was a third generation lumberman and one of the original Pennsylvania lumbermen working in the timber business. His father (after retiring from the United States Air Force) was a custom carpenter. Now Jerry plants and cares for living trees.

Jerry was born in Omaha, Nebraska, and says he cannot remember a time when he was not interested in plants. His father was relocated twice more before retiring from the Air Force at which time the family moved back near the Williamsport, Pennsylvania area from whence they came. Jerry earned a BS degree from Penn State University with a major in landscape contracting including design and plant health care and a minor in business. His college summers were spent working for a landscape company where he moved up through the ranks to superintendent. After graduation he worked as a landscape superintendent for The Brickman Group, a large landscape contractor in the Montgomery County, Maryland/Washington, D.C. area. Jerry supervised crews, designed new plant installations, initiated new client proposals and set up maintenance programs and procedures. He then became an area horticulturist for The Smithsonian Institute covering the American History Museum, American Art/Portrait Gallery, National Postal Museum, Renwick Gallery, Anacostia Community Museum and the American Indian Research Center. He created and oversaw designs and staff assignments for the horticulture and landscape functions of these institutions. He served on various committees and assisted other area horticulturists with designs and installations in their institutions. Jerry went on to serve as landscape manager for The Baltimore Museum of Art and then became horticulture supervisor for the U.S. Arboretum and Agricultural Research Service. In addition to responsibility for the horticulture and grounds of the U.S. Arboretum, he created and executed an overall tree replanting master plan which included inventory and cataloging of the trees using Global Positioning Satellite methods. During his tenure there Jerry also oversaw a riparian restoration program for several streams in Prince George's County, Maryland. In 2003 Jerry came to the Philadelphia Zoo as Director of Garden Operations. He and his wife Cecilia moved to Wilmington, Delaware, where they still live with their three children, Dana, 9, Solomon, 5 and Holly, 4.

As Director of Garden Operations Jerry oversees the entire horticulture program including horticulture designs, staff assignments, maintenance programs, risk assessment and grounds functions. The department is also responsible for implementing the Zoo's "green" measures, its recycling program, Zoo cleanliness and event setups and takedowns.

Jerry's management philosophy is definitely team-oriented; he rattles off the team member names and examples of their individual accomplishments and special areas of interest or expertise as well as instances of their willingness to pitch in and help whenever problems arise.



Jerry's interest in, and research of, all elements involved in the design of landscapes has only intensified over the years. He is an avid proponent of the "right plant for the right place." Jerry takes a holistic approach to plant health, i.e., the healthy lifestyle of each plant needs to be addressed at the design plan stage. Such landscapes are designed with plants that can live in harmony with their plant neighbors and their environment rather than compete or entail lots of human intervention like pruning or chemicals or water. When possible, like the entrance area of McNeil Avian Center (MAC) and the hydroseeded rear area between MAC and African Plains, he uses native plants and designs that support local wildlife and whose attractiveness he hopes will encourage area garden owners to follow suit.

Working with the varied and often exotic needs of zoo animal habitats presents enormous horticultural challenges. Most docents are very aware of some of these issues - so many animals love their plants. The pumas love their trees, the birds in the MAC Indonesia exhibit love their palm leaves and small potted shrubs, and only the hot wires in the gorilla yard have kept the gorillas from overwhelming those enticing young trees with their attention.

The Zoo outdoor exhibits are simpler because the Philadelphia climate narrows the variety of plants that can survive. Horticultural mimics of tropical plants are used although there still remain aspects such as soil types, water and light requirements, toxicity of certain plants to animals or other plants, the eventual size and shape of the plant, to be considered and worked around. Indoor areas with a fairly controlled climate are more complicated. We are trying to replicate an environment on a small scale; we want it to look "natural," but the space constraints alone create an unnatural micro-climate with its attendant challenges to overcome.

The planning and maintenance by the horticultural and groundskeeping team at the Zoo help enrich the Zoo experience for both our animals and our visitors.

## Thanks to Maria and Sue, Orangutan Family Thrives (cont.)

*(Continued from page 1)*

Maria's training of Tua provided answers. She worked with Tua to collect urine samples up to seven days a week. "Of course, there were days when Tua just didn't want to get out of bed to give me a sample. If the data surrounding this period supported it, we assumed that meant she was menstruating. We expected ovulation fourteen days later and watched them for confirmation, as Sugi's actions would be indicative. If he wouldn't leave her side, she was probably ovulating." The turning point in this journey for Sue was late February 2009.

**Sue:** "Sperm was in her urine at what we presumed was her ovulation peak. There was also labial swelling two weeks later, which can indicate pregnancy, and continued lack of menstrual bleeding. We had seen each of these signs previously but not all together. All of the puzzle pieces were finally fitting into place. When the lab confirmed February conception, we calculated her gestation. We were looking at September 28 to October 28 as the probable range of dates for the birth.

"We had already started to develop a birth management plan when we had earlier suspected that Tua was pregnant. We needed a soup-to-nuts plan covering every conceivable possibility and its resolution, knowing that we would probably not think of everything but giving our best effort to make certain we consider every contingency."

The best way to increase the chances of success if intervention becomes necessary during birth is to maximize Tua's comfort level by minimizing the amount of surprise. Maria knew that it was her responsibility to select where she would like Tua to give birth and familiarize her with the accommodations. Maria then started inviting members of the vet and primate keeper staff to help habituate Tua to the various changes that would occur once she gave birth. Bringing the veterinarians to PECO also allowed them to perform an ultrasound on Tua. Although she disliked the gel on her belly, she cooperated. When experts from outside the Zoo visited, Tua was unfazed. There were six strangers in the room, and Tua cooperated beautifully.

All departments involved in the contingency planning continued developing the birth management plan "literally right down to the wire." The final get-together for Zoo staff to review the plan was Thursday afternoon, the day before Batu was born.

**Maria:** "We had started early morning checks because animal births tend to occur in overnight hours. Mandy Fischer had the 6:00 a.m. check that day, and Tua had been acting normally. I came in at 7:30 a.m. and went straight

down to see Tua. As soon as I arrived, Tua began moving around the room, unable to get comfortable. Since this stereotypic behavior indicates labor, I called the hospital. The clock had started. I started seeing contractions as well, but after half an hour of waiting, I decided to leave. She had just finished a contraction and was resting, so I went to feed my other critters. I wasn't gone long when I heard the bang of the cage door rattling and then the squeak of the baby.

"I radioed Mandy to start the phone calls. Step one was completed, and Tua was doing everything right. She was cleaning the baby and holding her close to her body to keep her warm. Step two was passing the placenta. We went out into the hallway to determine what to do from here on out. Once again I leave the room for a minute and come back to find the problem solved - Tua had passed the placenta, but she didn't know what to do with it trailing behind her. I leave and return to find the placenta detached. How ironic that each time we leave the room to determine our next course of action, we return to discover that Tua has taken care of everything by herself!"

**Sue:** "We watched closely the first few days. Everything could look fine, but we could be missing something. If the baby is not nursing properly, she could succumb in the first 72 hours. It was tense those first days as we tried to observe everything. We filled pads of paper with detailed notes. There were confirmed signs of nursing, just not at the intervals we expected. We wanted to see the baby nursing every two to three hours, but we only confirmed nursing every six hours."

By the end of the week both Tua and Batu were doing well, but Tua seemed to be getting tired of the constant observation.

**Sue:** "It literally got to the point where she would place big bags and cardboard boxes around her to hide her baby from all of us. We had to take our cues from her and give her more privacy."

Maria's bond with Tua came in handy during the 24/7 monitoring period. Sue explained that babies become dehydrated if they are not nursing, but on Day 2 Tua allowed Maria to pinch the baby's skin to confirm that there was sufficient hydration.

Batu's birth marked the end of a three-year journey for Maria Schwalbe and Sue Isackson, but their work together is not over. They will now start to gauge the milestones in Batu's growth as she develops from a tiny infant to a mature orangutan.

-Lyn Nec

## Lucky Docents Get First Peek at Batu and Tua

We did our morning shifts: rain, humidity, lots of school children, animals lolling about, tours going on, leaves golden in the mist. So there we were, back at the office eating Mary Bates' amazing pumpkin cake when the call came from a docent still out on tour: TUA AND THE BABY ARE OUT! HURRY! THEY JUST GOT HERE AND THEY MAY ONLY BE OUT FOR A FEW MINUTES! THEY'RE IN A HUGE BLUE BUCKET! HURRY!

Zoo folks were coming in from every door and at every speed, and the volunteers were as excited as teens spotting a rock star. We began gathering children and families, so they could witness what felt like a cute miracle. More than one person teared up. The photographer was beside herself. Children got quiet. A man could hardly tear himself away, and later he told us he had a tiny infant at home and had brought his son to the Zoo to give his wife and baby a

break. We came back again and again. This baby, whose gender might not be known for months, is adorable! Tua and the baby took all of this in stride. She was in her enormous bucket, the baby clinging to her, the baby nestled in the crook of her arm, the baby nursing, the baby sleeping. Tua looked so relaxed that at one point she opened her arms and rested them on the rim of the bucket, as if to show the baby to us. And then, amazingly, she got up and walked across the room, then climbed to a straw-filled ledge with the baby clinging to her. She rested for a few moments and then took a bunch of the straw, went back to the bucket (this is not a normal bucket, but rather the size of a very small bathtub) and covered herself and her baby with the straw, as if to say, "OK, enough. We need a nap."

-Betsyann Carter

### Fun Fact



Desiree Haneman

Sugi accepts the fact that Tua refuses to let him touch the baby. He even reluctantly accepts the fact that Tua brings Batu to Maria Schwalbe, primate keeper, to touch. Maria explains that Sugi probably views her as the "grandmother." However, when Tua brought Batu to Sue Isackson, RVT, Senior Vet/Lab Technician, Sugi rebelled. He went to the back of the tunnel to sulk. Then he took a mouthful of water and spit at Sue and Maria. What a way to show his displeasure!

## New Exhibit to Feature LEGO® Bricks

(Continued from page 1)

A twice-the-size-of-life sculpture of a Micronesian kingfisher and brown tree snake will be featured north of the McNeil Avian Center. The "storyline" will feature the Guam Bird Rescue and the Zoo's breeding project. Building on the positive results of the captive breeding program in Guam, the Zoo hopes one day to reintroduce kingfishers to snake-free portions of the forests of Guam.

In the water at the lower duck pond, a 7.5-foot polar bear sculpture will be standing on a melting ice flow. This site will emphasize the effects of global warming on the polar bear population and the Zoo's support of the Polar Bears International project.

Eleven life-size golden lion tamarin LEGO® brick sculptures will be mounted within the former red panda habitat in Carnivore Kingdom. The message will center on the Zoo's nearly 20-year sponsorship of Dr. Andy Baker's work in the Poço das Antas Biological Reserve in Brazil. The planting of native trees and creation of forest corridors

between isolated forest fragments is helping to maintain the genetic diversity of the wild tamarins, once one of the most critically endangered primates in the world.

At the North Gate, visitors will help construct a huge LEGO® brick mural of the Footprints logo.

Each station will provide an opportunity to reach both children and adults with action steps that can help save our planet. The *Creatures of Habitat* Zoo-wide exhibit will afford docents new and exciting ways to help educate guests about the Zoo's mission.

- Lourene Nevels

## Where, Oh Where Has the Chestnut Tree Gone?

There are quite a few docents who might remember the fine old American chestnut trees that dotted our deciduous forests of the East Coast. Mighty trees, growing to 150 feet and spreading wide, the American chestnut was the “cradle to the grave tree.” Its wood was used for cradles, coffins and everything in-between. Its delicious nut was food for masses of animals and for people too. Alas, a full 25% of eastern United States woodland chestnut trees (especially affected, Pennsylvania) mostly disappeared due to a fungus infection brought into the United States from the Chinese chestnut tree in the early 1900's. The Bronx Zoo was the first to notice the decline of their chestnut trees when the fungus from their Chinese imports began to take hold. By 1950, the mighty tree had all but disappeared.

Do you know the tiny corner of the Zoo where our two American chestnut trees and one Chinese chestnut were planted about 12 years ago? The Chinese still thrives, but the Americans have succumbed to the blight. The Chinese chestnut stands at the top of Bird Valley and offers a great conservation story to tell visitors because there is good news to be had.

After years of research, mostly through the University of Tennessee and the U.S. Forest Service, a new hybrid of the American chestnut tree with 6% genetic input from the Chinese chestnut tree (which is resistant to the fungus) is being reintroduced into our own biome. In November a ceremony was held honoring the planting of these American chestnut saplings on the lawn of Independence Hall. There are also thriving trees at the Chestnut Hill Academy since 2008 and one on the White House lawn since 2005.

So, while we celebrate good news stories of the golden lion tamarins' reintroduction to the wild, let's not forget the conservation work for flora as well as fauna; every animal on earth eats plants in some form. Here's hoping the American chestnut tree can return to its greatness in our environment and “Under the spreading Chestnut tree” can be meaningful once again.

-Barbara Nolan



Alessandro Catenazzi

## Critter Corner: Pygmy Frog Found in Peru's Manú National Park

Hidden away in the heart of the Peruvian cloud forest lies the Manú National Park, located in the protected areas of Madre de Dios and Cusco, high in the Andean Mountains. The park is well known for its extraordinary wealth of lowland rainforests and its immense areas of breathtaking cloud forests. Here, the ever-present mist shrouds and often hides plants and animals that are highly adapted to existing in a cold and humid environment. The Manú National Park is the oldest of the protected provinces, encompassing a range of 6.2 million acres. This rich bionetwork features an extraordinary range of life zones from high-elevation grasslands to lowland tropical valleys, where farmers cultivate cocoa and exotic fruits. Because of its topographical range, it has among the highest levels of biodiversity on the planet.

The newly discovered Noble's pygmy frog (*Noblella pygmaea*) inhabits the cloud forest and the high-elevation grassland in and around the Manú National Park. Measuring less than half an inch and able to fit on a fingertip, the Noble's pygmy frog is not only the smallest frog in the Andes, but one of the smallest vertebrates in the world to be found above 9,840 feet. It should be noted that species similar to the pygmy frog, living at higher altitudes, tend to be larger than species in lower regions. Its predominantly brown color camouflages the tiny frog from its predators. The female frog lays two fully

hydrated eggs approximately four millimeters in diameter, about two-thirds of the size of their mother. In contrast to most amphibian species, these eggs are laid in moist, terrestrial microhabitats, such as moss or leaf litter. The mother remains near the eggs to protect them from insect predators and from drying out. Unlike most of the frog's relatives, the eggs hatch not into tadpoles, but into actual froglets.

Despite living in a National Park, Noble's pygmy frogs are not protected from many of the threats facing the Andean amphibians, which include habitat modification, deforestation, over-grazing by introduced livestock, the effects of global warming and the recent arrival of the highly dangerous chytrid fungus. Unfortunately, there is no way of stopping the wave of fungal infections in many of the regions, but researchers hope that the nature of the ecosystems in the Andes will allow the endangered pygmy frogs safety from the plague. The future of this vast biosphere is now left in the hands of devoted researchers, who hope to save this tiny frog from the threats to its existence.

“...endless forms most beautiful and most wonderful have been, and are being evolved.” Charles Darwin

-Information compiled and written by Fran Turlinski

## Horticulture Connection: The Solitude

A number of factors impact the horticultural design of the two-phase Solitude project. Project goals are to recreate the historic Philadelphia Schuylkill River “villa” setting with paths, terraces and plantings to make an educational, native, wildlife-friendly garden as well as expand the functionality of The Solitude. Whenever possible, the plants are native to this region and were available to the mid-eighteenth century gardener.

Over the years, The Solitude had become visually isolated from the rest of the Zoo. The boxwoods were drastically reduced in size to open the view to The Solitude from the surrounding Zoo areas and paths. An aggregate concrete mix was installed in the pedestrian areas around the building, and the new plants were more formally grouped. The aim is to bring The Solitude into the Zoo landscape and to open views from The Solitude to its original grounds, which are now part of the Zoo areas.

The Zoo environment presents several constraints. The plantings need to be Zoo-animal friendly; for example, there can be no toxic seeds that could enter nearby exhibits. Plantings should be low maintenance and drought-tolerant; they must not harm established plants. The plants must withstand Zoo peacock use, traffic by Zoo visitors and the impact of tours and other uses of The Solitude and its gardens.



New plants were set on both sides of the aggregate concrete walk leading to The Solitude’s front door and around the house itself. On the right on the approach to The Solitude from the flamingo yard are two apple serviceberries (*A. x grandiflora*). The apple serviceberry bears white or pink spring flowers followed by one-quarter to one-half-inch purple fruits that taste somewhat like blueberries. Birds, including American goldfinch, tufted titmice, brown thrashers, blue jays, Carolina chickadees, northern cardinals and American robins are all enamored of them. Native Americans and early settlers used the berries in jellies, pies and muffins.



Past the serviceberries, on either side of the walkway approach to The Solitude, are two groups of three *Buxus sempervirens* “Graham Blandy” cultivars. With the familiar boxwood odor, the “Graham Blandy” grows as a column up to 9 feet tall but only 2 feet wide. Bees like its fragrant spring-blooming flowers.



In the beds stretching on either side of the “Graham Blandys” and intermixed with Appalachian sedge (*Carex appalachia*) is Pennsylvania, or yellow, sedge (*Carex pensylvanica*) which establishes quickly on



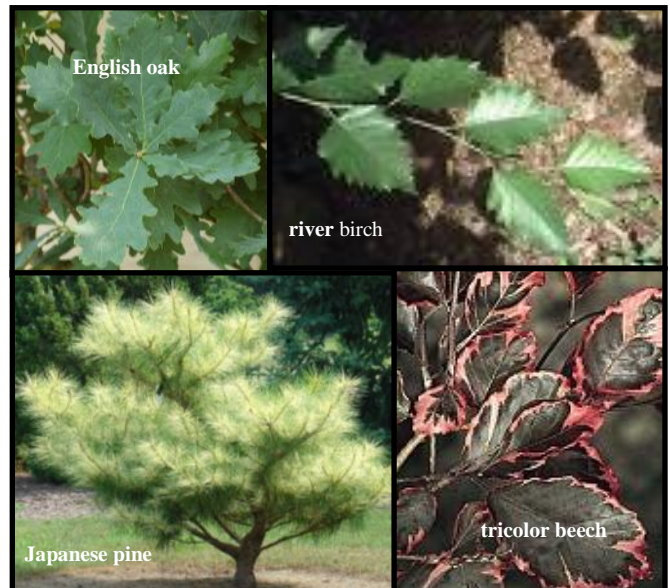
disturbed areas and provides cover for migratory waterfowl and sandhill cranes. Ducks, sharp-tail grouse and prairie chickens use it for nesting material; the grouse and chickens also use it for cover and dancing grounds.



Seen from near The Solitude’s door, toward the flamingo yard path, is a significant young tree; it is a “baby” of the huge old English elm tree beside the Greenhouse. The “baby,” grown from a cutting of the old elm, is about 15 years old.

There are several established trees on The Solitude lawn. English oak (*Quercus robur*) frequently retains many dead leaves through the winter. The Japanese pine, with an attractive evergreen foliage and lace bark, is also popular for the art of bonsai. The small river birch (*Betula nigra*) was the first tree planted as part of the Zoo’s carbon footprints program. It begins with smooth bark but later develops papery, horizontally exfoliating bark in several colors from cream to orange-brown. The tricolor beech (*Fagus sylvatica*) has variegated foliage and often shows a number of color patterns that turn copper in the fall.

- Sondra Siemel



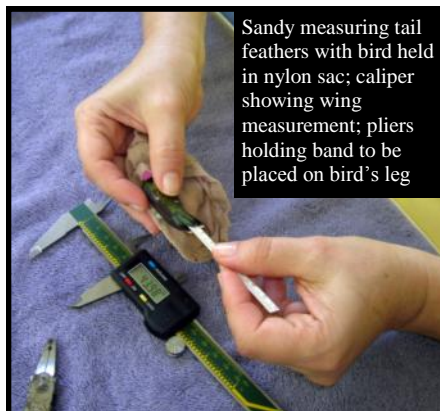
## Hummingbird Banding Contributes to Understanding\*



When my husband and I purchased a more than ten acre property in central Pennsylvania a few years ago, we assumed responsibility for feeding approximately 200 ruby-throated hummingbirds that have been returning to this “fly-through” route for at least 20 years. The setting is perfect for the species – lots of wildflowers and water sources (mountain stream, ponds), and is bordered by state game lands in the Rothrock State Forest.

My hummingbird husbandry rose to a whole new level when I decided to have the birds banded last July. For two years I had considered it, at the urging of a friend of mine who is an avid birder. But I put it off for fear it would be too stressful for these tiny, delicate birds. In the end, the opportunity to contribute to the understanding of hummingbird behavior prevailed. That and a conversation with noted naturalist, author and licensed hummingbird bander, Scott Weidensaul, who would be conducting the banding, persuaded me to do it.

July 12 was a perfect day for bird-banding. The “team” arrived at 9:00 a.m.—Scott, Sandy (who would complete her qualifications to be licensed as a hummingbird bander by the end of the day) and Gary and Walter, the “trappers.” I wasn’t sure how much I could even watch the process, but I actually ended up participating by recording data for the international log. Walter and Gary each manned a trap—both of which were positioned over feeders that were already in place on my house. Scott and Sandy were stationed on the front porch where Sandy gently held each captured bird in a protective nylon sac and read off her measurements of wing, tail and beak, weight, sex and amount of fat on throat (an indication of readiness for migration). Scott recorded the data in the log, then carefully attached the tiny band to the bird’s leg and dabbed a dot of violet paint on the bird’s head, indicating it had been banded. The paint dot alerted Gary and Walter to



Sandy measuring tail feathers with bird held in nylon sac; caliper showing wing measurement; pliers holding band to be placed on bird’s leg

\* Pictures provided by Lourene Nevels

release the bird if it ended up in the trap again.

The thrill for me occurred when Scott placed a newly-banded bird in my hand for me to release. I felt a vibration as it sat in my open palm. “Oh, I feel its heart beat!” I said to Scott.

“No, you feel its respirations—the heart beat is too fast to be perceptible by human touch.” And then the bird was gone, flitting off to catch an insect or lap nectar from a wildflower with its long tongue.

That’s right—hummingbirds *lap* the nectar with tongues extended through their beaks—they don’t suck it. And if you watch very closely, you can see their tongues!

Truth be told, I spend more time preparing the nectar (boiling water, adding sugar, stirring until completely dissolved), washing feeders and refilling them than I do watching the birds. I watch, vicariously, as I look up from my desk next to the picture windows where five heavy-duty quart-sized feeders hang from my roof gutters. The birds are there from dawn to dusk, arriving May 1 and leaving by October 1—like clockwork.

Various instruments are used to take the measurements during the banding process:

- a scale to measure weight (males: 2.7-2.9 grams; females: 3.0-3.4 grams; a penny: 2.6 grams)
- a digital caliper to measure the length of the bill and wings
- a centimeter tape to measure the length of the tail
- a drinking straw to blow aside the feathers at the throat to check the amount of fat, and
- a jeweler’s loup to determine the degree of grooving on the beak (an age indicator—young birds have more striations than do adults).

All measurements and banding must be completed and the bird released within 15 minutes of capture to minimize stress.

Females and young males appear to be quite similar, with white tail feathers (only adult males have the red gorgette feathers at the throat). Young males have more buff-colored stippling and striations on their beaks, compared to females.

- Lourene Nevels

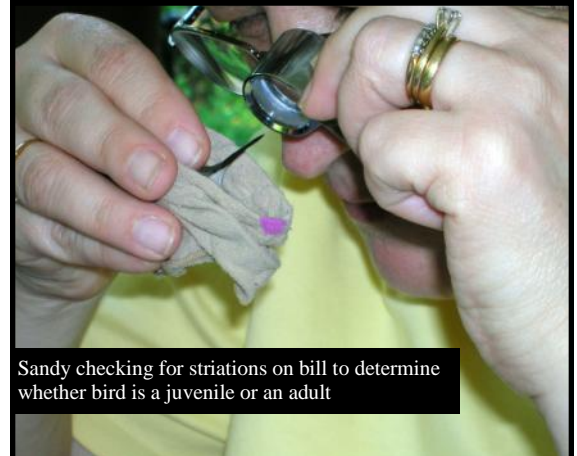


### Some interesting facts about hummingbirds...

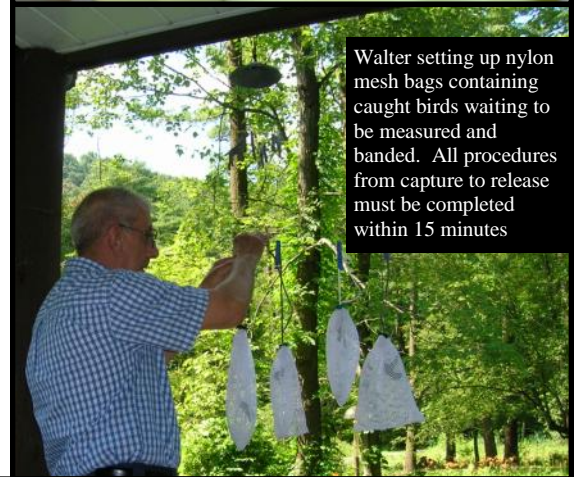
- *Respiration*: resting rate, 250x/minute (compared to 25-30x/minute for pigeons and 16x/minute for humans)
- *Heart rate*: hummingbirds have the largest heart, relative to body size, of all animals (1.75-2.5% of total body weight); at rest, the heart beats approximately 500x/minute and can go up to over 1,200x/minute when the bird is excited
- *Body temperature*: 104-110 degrees during the day, 70 degrees at night (hummingbirds can enter torpor by lowering breathing and heart rates)
- *Migration*: ruby-throated hummingbirds travel 2,000 or more miles, beginning in late August through early September, to Mexico and Central America, *crossing the Gulf of Mexico nonstop*; they travel in solitude, not in flocks where they would have the advantage of draft from other birds.

Source: *Hummingbirds, Their Life and Behavior*, Tyrrell, E. and Tyrrell, R.; Crown Publishing Company, New York; 1985

- Compiled by Lourene Nevels



Sandy checking for striations on bill to determine whether bird is a juvenile or an adult



Walter setting up nylon mesh bags containing caught birds waiting to be measured and banded. All procedures from capture to release must be completed within 15 minutes

### Eileen Steely Binckley Contributes to Zoo's Archives

Eileen Steely Binckley is one of 500 volunteers who dedicate their time and talents to the Philadelphia Zoo. Acknowledged at the 2009 Volunteer Gala for her exceptional accomplishments over the last 14 years, Eileen is responsible for entering necropsy data into the Zoo's archives.

Spending most of her time in the Penrose Library, Eileen has traced autopsy reports of animals from the beginning of the Zoo in 1859 and entered them into the computer. In early spring of 2009, Eileen completed the last box of records.

However, Eileen's work has not ended. During the past several years, she has also been cleaning up necropsy records that did not transfer cleanly when the new computer program started. Working on the archives, she is digitizing and scanning press releases, financial and business minutes into the computer. All of these efforts are vital to the history of the Zoo. Eileen's vocation for 20 years was a librarian in the Hatboro-Horsham school district. Unlike many retirees who fulfill their dreams in other pursuits, she used her well-honed librarian talents to preserve these very important statistics.

Eileen also spends two days a week working in the professional library of the Renfrew Center in Andorra – an eating disorder treatment center. However, two days a week are left for her hobby of antiques. She rents spaces in antique malls at The Bird in Hand in Lancaster County and at Zionsville in Lehigh County. On weekends, both Eileen and her husband, Tom, volunteer with their church.

Before her retirement, Eileen also worked full time in the medical library of the College of Physicians. While raising her family of two boys, Eileen earned a Masters degree from Villanova University.

Eileen does not spend much time in the Zoo gardens with the animals, but she does make a point of visiting her favorite animals in Big Cat Falls. "In another life," she claims, "I would like to be a keeper of the big cats." Meanwhile her two domestic cats, "Phoebe" and "Patch" will suffice.

- Shirley Lord

## The Status of Large Mammals in North America

In the last issue, I discussed the status of selected North American birds. What follows is a quick review of the current status of some selected species of mammals.

**White-tailed deer** - Habitat change and reintroduction have made this species the most common wild ungulate in the world. I can remember going for week-long camping trips in central Pennsylvania in the 1960's and counting perhaps a half dozen per trip. The original eastern subspecies was probably hunted out and nearly all local deer are descendent from animals taken from the Great Lakes or western United States. They have now become a regional pest in many urban areas.



**Mule and black-tailed deer** - While not such an "urban" problem deer as the white-tailed species, their numbers are high. Some western populations may be in trouble in the future due to development on lowland winter ranges.

**Elk** - They were nearly driven to extinction and the eastern subspecies most likely was driven to extinction. Populations out west have grown and elk have successfully been re-introduced in the East with the Pennsylvania herd now doing well and promoted as a tourist attraction. Pennsylvania elk-hunting licenses fund the state elk biologist, who not only sets hunting quotas but also looks for other areas in the state to allow expansion of the herd.

**Moose** - Moose are re-colonizing areas of New England, New York State and the Great Lakes where they have not been seen for several generations. In some areas of New England moose have become a major road hazard.

**Caribou** - There are three types: barren ground, woodland and mountain. Since hunting controls were established, barren ground caribou numbers have been dependent on weather, and numbers fluctuate based on the severity of arctic winters. Contrary to some conservation organizations' dogma, barren ground caribou numbers on the Prudhoe Bay oil fields have increased. The reason for the increase is, however, due to the lack of tolerance for the caribou's major predators—wolves and grizzly bears. Woodland and mountain caribou (some scientists consider these to be the same subspecies) have not done well in the lower 48 states. Re-introduction efforts in northern Maine have failed, and the small herd that ranges between northern Idaho and southern British Columbia are considered the most endangered recognized large mammal in the United States. The projected climate change

associated with global warming may make keeping this species in the lower 48 a losing proposition.

**Pronghorn** - After hunting controls were established, numbers of this species rebounded. Some populations may be in trouble in the future due to development on lowland winter ranges. The Sonora Desert subspecies is considered endangered, and the planned immigration border fence would separate the herd that ranges across the United States and Mexican border.

**Mountain goat** - After hunting controls were established, numbers of this species rebounded. The species was also introduced to areas in which it was not previously recorded. In the Olympia Mountains of Washington State, the species had to be removed because it was eating rare species of indigenous plants into extinction.

**Musk ox** - Hunted out on the Alaskan and Canadian mainland, the species was re-introduced from animals captured on Greenland. On the mainland of Alaska, the Arctic National Wildlife herd has recently dropped close to local extinction, most likely due to heavy barren ground grizzly predation on calves.

**Bighorn sheep** - This is the one large herbivore species whose numbers have not recovered to pre-1900 levels. Three types are recognized: Rocky Mountain, desert and stone (California). At one time a fourth type, Audubon sheep, was believed to have been market-hunted to extinction. Recent genetic studies show that this type was nearly identical to the Rocky Mountain bighorns. Bighorn sheep are very vulnerable to winter range habitat development, disease spread by domestic sheep and, in California, by pumas that have learned to specialize in killing wild sheep.

**Dall sheep** - After hunting controls were established, numbers of this northern mountain species have rebounded.

**Collared peccary** - In some urban areas of the southwest United States, this species has become a pest, digging up irrigation pipes and, while defending itself, badly injuring and sometimes killing domestic dogs.



**American bison** - This species has been saved from extinction by a combination of United States and Canadian National Park systems' efforts and captive breeding, led

(Continued on page 13)

## The Status of Large Mammals in North America (cont.)

(Continued from page 12)

and organized by the New York Zoological Society. This animal is now so common that thousands have been semi-domesticated. Two types, plains and woodland bison, are found in North America. The Canadian National Park system has taken the lead by re-introducing and replacing the plains bison with the wood bison in appropriate habitat within the species' historic range. Genetic evidence shows that 80% of the plains bison herds in the lower 48 states have some domestic cattle genes. A plan is being developed to eliminate those individuals and make the wild herds pure plains bison.



**American beaver** - During the 1800's, beavers were the most frequently sought fur-bearing animal in the world. Populations were trapped out all across North America, and

the species was only saved when beaver-fur-trimmed hats for men went out of fashion. The species' numbers have increased due to re-introduction and natural re-colonization. In some areas, beavers are now considered pests, particularly in southern New Jersey where their dams are blamed for local flooding.

**Black bear** - Once considered rare across its entire range, this species has become one of the most common species of bear in the world. When the animal became legal game and hunting was controlled, numbers rebounded. It is believed that over ¼ million can be found in the lower 48 states. Recently black bears have been seen in upper Bucks County close to Philadelphia.



**Brown bear** - Also known as grizzly and Kodiak bears, numbers of brown bears have slowly increased, but they still remain vulnerable to humans and, perhaps in the future, climate change in the lower 48

states. This species could easily be re-introduced into other western states in the lower 48 but for anti-predator state government policies. Perhaps if the policies adapted to increase the numbers of the black bear were applied to brown bears, the species' numbers and range would increase.

**Polar bear** - Until recently most populations were stable. The effects of decreased ice flow in the Arctic have lowered some populations, but not others. Industrial pollutants in some regions (particularly in Norway) pose a potential threat.

**North American river otter** - Otters were an endangered species, due to fur trapping and water quality in the eastern United States, until recently. Controlled trapping seasons and re-introduction programs have this species repopulating much of its previous range. Clean water regulations have also increased the numbers of fish that the otters feed on. Several years ago, an otter was photographed in the Schuylkill River fish ladder at the Art Museum Falls. Otters have also been confirmed in the Heinz National Wildlife Refuge located within Philadelphia city limits.

**Canada lynx** - A habitat and prey (snowshoe hare) specialist, this species was recently placed on the endangered species list in the lower 48. However, lynx have been naturally re-colonizing northern New England, and the Colorado re-introduction project is now seeing reproduction in the wild.

**Bobcat** - This is another species whose numbers increased when state wildlife officials decided to change its status from vermin to a legally hunted and trapped game animal. Numbers are increasing in the east and the biologist who studies and sets hunting and trapping limits for bobcats in Pennsylvania is funded by hunting and trapping state license fees for this species.



**Ocelot** - Small vulnerable populations are still holding on close to the Mexican border in Texas. Like the Sonora pronghorn, the ocelot can be severely affected by anti-immigration policies (brush clearance) and fences on the border.

**Jaguar** - This formerly native species was first confirmed to be back in the United States by photographs in the 1990's. So far only males have been seen or photographed. Until breeding females are confirmed, the future of wild jaguars in the United States is precarious. Like the ocelot, anti-immigration policies could affect this species. However, if the United States were serious about having jaguars return, we would be releasing female jaguars in appropriate habitat. Doing so would also give our nation more credibility when we "suggest" methods for Mexico, Central America and South America to manage their jaguars. The Philadelphia Zoo's support of a viable Mexican jaguar population nearest to the United States is very important for the potential recovery of this species.

(Continued on page 14)

## The Status of Large Mammals in North America (cont.)

(Continued from page 13)



**Puma** - Like the bobcat, the puma is another species whose numbers increased when state wildlife officials decided to change the status of pumas from vermin to legally hunted big game. Populations in the western states have increased, and puma-hunting license fees fund nearly all puma biologists and research on the big cat. The Black Hills of South Dakota (where the Zoo's three pumas originated) have been genetically determined to be the

source of breeding puma populations now found in western Nebraska, North Dakota and Saskatchewan as well as transient individuals killed by human-related causes in Wisconsin, Minnesota, Illinois, Kansas and Oklahoma. As for the presence of pumas in the East, the only confirmed wild pumas east of the Mississippi are the Florida population - most commonly referred to as the Florida panther. Having been involved in researching this question since 1994, I can without hesitation say no positive evidence as yet exists for wild pumas anywhere else east of the Mississippi River, although evidence of released or escaped captive animals is strong.

**Gray wolf** - Populations in northern Canada and Alaska have been strong for some time. Great Lakes wolf populations have increased from Minnesota into Wisconsin and upper Michigan. Rocky Mountain wolf re-introduction in Yellowstone and Idaho has been a great success. On their own, wolves are starting to spread into western Washington and Oregon. Species recovery in other western states is made difficult by the established anti-predator policies of certain state governments.

**Mexican wolf** - Some canid biologists consider this a separate species. This species breeds readily in captivity, and captive-born animals can be successfully introduced into the wild. However, to date, local anti-predator prejudice has prevented this re-introduction project from being as successful as Yellowstone's.



<http://www.egs.uu.se/evbio/Persons/Jennifer.html>

**Red wolf** - As with the Mexican wolf, some canid biologists consider this a separate species. This species once ranged throughout the southeastern United States into eastern Texas and perhaps as far north as southeastern Pennsylvania. A long running re-introduction project in eastern North Carolina has been moderately successful. However, this effort is dependent on trapping Eastern coyotes in the re-introduction range. Eastern coyotes are thought to pose an inter-breeding danger to the genetic purity of these species.

**Eastern coyote** - Coyotes are now well established in every eastern state (including within the city limits of Philadelphia) and all Canadian Atlantic provinces including Newfoundland. Some canid biologists now believe that the eastern coyote is actually a type of wolf closely related to the "bush wolves" found in Ontario's Algonquin Provincial Park. The Algonquin wolves are genetically very similar to the red wolf. If this theory is eventually confirmed, the status of the red wolf and its re-introduction project will need to be re-examined.



[http://www.state.nj.us/dep/fgw/coyote\\_info.htm](http://www.state.nj.us/dep/fgw/coyote_info.htm)

- Bob Berghaier

## Top 10 Countries with Greatest Number of Endangered Species

According to ecoworld.com (11/05/2009), the IUCN data reveal the following countries, from lowest to highest, that have the greatest number of Endangered Species according to their 2009 Red List:

#10 Philippines-682 species

#5 Mexico-900 species

#9: India-687 species

#4 Indonesia-1126 species

#8 Brazil-769 species

#3 Malaysia-1166 species

#7 Australia-804 species

#2 United States-1203 species

#6 China-841 species

#1 Ecuador-2211 species

## Conservation Global Network: Leatherback Sea Turtles Struggle for Survival

*"From birth, man carries the weight of gravity on his shoulders. He is bolted to earth. But man has only to sink beneath the surface and he is free."* Jacques Cousteau

Leatherback Sea Turtles (*Dermochelys coriacea*) have witnessed the fall of the dinosaurs and the rise of civilization. The first fossils found from sea turtles were from the Triassic period (209-245 million years ago). Like many animals, the leatherback has been hunted for centuries. It is one of seven species of sea turtles that survives today. On the verge of extinction and listed as critically endangered by the IUCN (International Union for Conservation of Nature), the leatherback's plight has generated high levels of awareness by international, federal, state and local conservationists. Today, their habitat spans the globe from the tropics to the temperate waters of the Atlantic, Pacific and Indian Oceans and Mediterranean Sea, with adults traveling as far north as Canada and Norway and as far south as New Zealand and South America.

The leatherback is the largest of all marine sea turtles in the world, weighing as much as 2,000 pounds and reaching nine feet in length. Unlike most sea turtles, the leatherback travels the fastest, dives to depths of 4,200 feet, stays down for up to 85 minutes and ventures into the coldest water. The inky-blue carapace (upper shell) is somewhat flexible and almost rubbery to the touch. Ridges along the carapace help give it a hydrodynamic structure. Leatherbacks are able to maintain warm body temperatures in cold water by using a unique set of adaptations that allows them to both generate and retain body heat. These adaptations include large body size, changes in swimming activity and blood flow and a thick layer of fat.

Female leatherbacks require sandy nesting beaches backed with vegetation and sloped sufficiently, so the crawl to dry sand is not too far. After mating at sea, females come ashore during the breeding season (March to July) to lay their eggs. Under cover of night, females dig a hole in the sand, deposit around 80 eggs, fill the nest and finally

return to the sea. On average, incubation of the two-inch eggs will take from 55 to 75 days, with hatchlings emerging at night to start their journey toward the sea.

The life span of the leatherback is unknown, but it is estimated that only about one in a thousand hatchlings survive to adulthood. A contributing factor to their limited lifespan is the human being (humans often take eggs; many turtles fall victim to fishing lines and nets or are struck by boats). Leatherbacks have mistaken plastic bags, raw plastic pellets, plastic and Styrofoam, tar balls and balloons for their natural food, jellyfish. Ingestion of these toxic materials can lead to the turtle's death. Other factors threatening leatherbacks globally include loss or deprivation of nesting habitat due to coastal development, disorientation of hatchlings by beachfront lighting, degradation of foraging habitat and global warming.

The fight is on to protect the leatherback from extinction. Research is underway to develop technologies to minimize leatherback mortality connected with long line fisheries. Various coastal counties and communities have developed lighting ordinances to reduce hatchling disorientation at night. Volunteers and biologists are patrolling beaches at night to tag or read tags, measure turtles, count eggs as they fall and help beach guards patrol the beaches to protect the eggs from poachers. Also, the United States continues to acquire nesting beaches for long-term protection.

Major environmental groups and conservation organizations have joined together to help protect these magnificent marine turtles. Right now Costa Rica is fighting to keep Las Baulas Park from being destroyed by developers. Please visit [leatherback.org](http://leatherback.org) to find out how you can help.

The oceans are our last and most unknown frontier. What lies beneath their secretive depths is still a mystery.

*-Information compiled and written by Fran Turlinski*



## Nature In the News

Compiled by Fran Turlinski

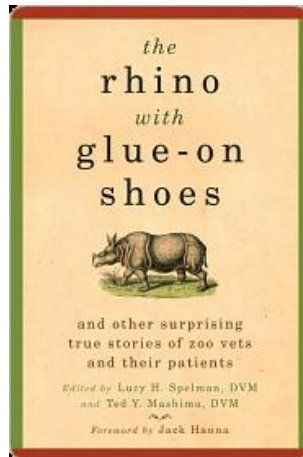
**Mutt in Pittsburgh Surrogate for Wild Dogs** – Keepers at the Pittsburgh Zoo had to intervene and help raise a litter of nine African wild dog (*Lycaon pictus*) pups that were born in late October. The pups' mother, Vega, unfortunately died of a ruptured uterus shortly after giving birth. In order to help care for the pups, zoo officials located a mixed-breed female dog in one of the city's shelters. The dog, Honey, had just given birth to her own litter and was able to nurse the endangered pups. Zoo officials call Honey "perfect, an absolutely fabulous mom" and report that all of the pups are gaining weight. The good news is that Honey was adopted by one of the zoo's teen students and is very happy, according to Tracy Gray, Media and PR Manager for the zoo.

Source: Associated Press, 11/05/09; Pittsburgh Zoo 01/04/10

**Alaska Sea Otters Granted Critical Habitat Protection** – The U. S. Fish and Wildlife Service has designated 5,855 square miles of near shore waters along the Aleutian Island, Bering Sea and Alaska Peninsula as critical habitat for the northern sea otter (*Enhydra lutris kenyoni*). During the early 1900's, the worldwide sea otter population was reduced to just a few hundred animals, due to commercial harvest by the Russian and Russian-American fur trade. Three populations of sea otters exist in Alaska today, but only the southwest Alaska population is listed as threatened. The Service estimates the statewide population to be around 70,000 animals.

Source: Environmental News Service, 10/08/09

## Book Review: The Rhino with Glue-On Shoes: And Other Surprising True Stories of Zoo Vets and their Patients



This is a must-read for any docent who loves non-domesticated animals and is in awe of the skill and dedication of the wildlife, zoo and aquarium vets who care for them. Drs. Spelman (National Zoo and Rwanda Mountain Gorilla project) and Mashima (Association of American Veterinary Medical Colleges) offer us a totally absorbing collection of 28 true stories from around the world.

I was absolutely entranced by these stories, but don't take my word for it; the book is warmly praised by Jane Goodall, Jeff Corwin, Jack Hanna, Jim Maddy (of AZA) and Roger Sant (of the Smithsonian). The writing style of each story is engaging; in addition, the 28 essays have been creatively grouped and prefaced, and a short biography is offered at the end of each story, for background on each writer. There is humor, tragedy and information offered in attractive and memorable form. Let me offer some specific highlights of topics and encounters.

There are stories that concern animals about which we, as Zoo docents, have some familiarity. The Indian rhino with crippling foot problems, a hippo that needed a root canal, a polar bear with a hernia, a tailored knee brace for a young giraffe, colonoscopy on a panda at Chengdu Reproductive Center, a kangaroo undergoing successful neurosurgery for a cervical spine dislocation (rehab included keepers holding his tail while he hopped in place!), anesthesia needs for a poison dart frog requiring micro-surgery on an eye injury, a crocodile with a skin infection, a falcon needing unusual orthopedic surgery and more.

Others come from the less-familiar world of the aquarium and were equally fascinating. A couple of these involved serious health issues in transporting animals. One of those, *When Whale Sharks Fly*, tells of getting a pair of 1,000 pound whale sharks from Taiwan to the new Atlanta Aquarium. *The Katrina Dolphins* story describes complications in air-lifting 16 dolphins, made homeless by hurricane Katrina, from Mississippi to an aquarium in the Bahamas. When the lactating mother of a five-month-old Beluga whale at the Chicago aquarium dies, nutrition becomes the crisis. Sorting out the problems of a sick giant Pacific octopus at the Baltimore Aquarium was helped by an MRI, after a CT scan was unsuccessful.

Interspersed are stories from the wild: treating lacerations in mountain gorillas in Rwanda, putting satellite collars on endangered Bactrian camels in Mongolia's Gobi Desert, tracking a forest elephant with a wire snare wrapped around his leg in Central Africa. These are stories of personal danger, physical hardship and great ingenuity.

- Roz Troupin

**The Rhino with Glue-On Shoes: And Other Surprising True Stories of Zoo Vets and their Patients**  
 Edited by Lucy H. Spelman, DVM and Ted Y. Mashima, DVM  
 Random House, 2009  
 ISBN: 978-0-385-34147-9  
 Trade Paperback 336 pages

## Going Greener—the Next Step

Hospitality volunteer Sandy Kuritzky and docent Dave Schaffer have taken the next step and installed Photovoltaic Panels that will generate 6,000 kwh/yr to the roof of their home in Lafayette Hill, PA. Based upon current Commonwealth rebates (approximately 32% as of this writing) and federal tax credits (approximately 30% with no cap, as of this writing), the capital pay-back period is estimated at about six years; however, based upon the anticipated electric rate deregulation in 2011, the breakeven point is expected to be fewer than five years. More importantly, they will be reducing their carbon footprint and have made the commitment to leave the world a better place.



Dave Schaffer

The physical installation of the panels took two full days. The only inconvenience experienced was a planned power-outage for about one hour, as various meters were installed. The contractor/installer took care of all of the “paperwork,” including arranging township permits and inspection and filing for the Pennsylvania Commonwealth Sunshine PV rebate for their 6,000 kw project.

According to Fronius, the manufacturer of the inverter used to convert sunlight into electricity, the energy from worldwide sunlight is about 15,000 times as much as the worldwide electricity consumption. The direct current generated in solar modules (panels) can only be fed into the power grid or used in a home after it has been transformed by an inverter. The inverter transforms the direct current (DC) generated by the solar modules into alternating current (AC), which is fed into the home or into the public grid and synchronized with the voltage used by the electric company.

The process is fully automatic. As soon as the sun rises and the solar modules generate enough power, the automatic control unit starts to monitor voltage and frequency. Once the level is sufficient, the inverter starts to feed energy to the grid. A few watts of solar power output are sufficient to achieve this.

Sandy and Dave can be reached at [dbszk@rcn.com](mailto:dbszk@rcn.com) if you'd like additional information or an invitation to watch their electric meter spin backwards!

- Dave Schaffer

## Cheetah's Genome Resource Bank Grows

More than 280 semen collections from 85 individual cheetahs have been added to the Cheetah Conservation Fund's Genome Resource Bank (GRB) since 2002. The CCF banks serum, white and red blood cells and skin samples of all cheetahs. Currently, the GRB holds over 1,600 samples with back-up samples held at both CCF and the National Cancer Institute in Maryland. Cheetahs suffer from gastritis, an inflammation of the stomach, caused by spiral bacteria which impacts negatively on the animal's health, with stress being one of the possible causes of this disease. The CCF cheetahs are very healthy and provide a baseline for a long-term international research project on the causes, levels and effects of gastritis in cheetahs. Source: [www.newera.com.na](http://www.newera.com.na)

- Fran Turlinski

## Nature In the News Compiled by Fran Turlinski

### Argentine Zoo to Release 3 Endangered Eagles - An

Argentine zoo plans to release three endangered crowned eagles (*Stephanoaetus coronatus*) back into the wild after several months of rehabilitation in captivity. The birds are to be taken to Catamarca, San Juan and La Pampa province for reintroduction into nature. Biologists will monitor them through tracking devices placed on their backs. The raptors are the most threatened species of eagle in South America--fewer than 1,000 exist in the wild. Source: *The Associated Press*, 09/30/09

### Unrestricted Poaching Could See Extinction of African Elephant in 15 Years - The International Fund for Animal Welfare warns that unless immediate action is taken, elephants will disappear from the wild within a generation. It is calling on the European Union (EU) and Convention on International Trade in Endangered Species (CITES) members to stop supporting occasional supervised ivory sales. Instead, they are urged to back Kenya's proposal to extend the current "resting period" on elephant ivory from nine to twenty years at the next CITES meeting in March 2010. Chad's Zakouma National Park had 3,885 elephants in 2005, but by 2009 the figures had plummeted to just 617. At least 11 rangers were killed by poachers there over the same period. Source: ANI on TRACK in News, 10/18/09

Chad's Zakouma National Park had 3,885 elephants in 2005, but by 2009 the figures had plummeted to just 617. At least 11 rangers were killed by poachers there over the same period. Source: ANI on TRACK in News, 10/18/09

## Docent Doings\*



In late September and early October 2009, **Ann Marie Byrnes** and her husband, Tom Hartman, visited British Columbia to photograph grizzly bears during the annual salmon run. It was a fantastic experience involving seven flights (from big jets to tiny seaplanes), hours traveling in small boats wearing orange survival suits and photographing grizzlies, whales (orcas, minke and humpback), bald eagles, Steller sea lions and the beautiful (but cold!) Pacific Northwest. It was wonderful!

**Virginia Pearson** spent a fantastic two weeks in Kenya this past July, seeing for the first time, after waiting forty years, elephants in the wild. How beautiful and serene they are! Up in the north, she spent two lunchtimes close enough to listen to their snoring and felt privileged that they felt so unthreatened that their babies lay down to nap. She later headed to South Africa at the end of January to attend the International Elephant Research Symposium and to set up some field collections for her elephant virus research at Princeton University.

**Lyn Nec** welcomed her first granddaughter, Myrica Mueller, on November 21, 2009. Myrica's parents, Shannon and Pete, met while completing the Longwood Professional Gardener program. Their love of plants led to the name choice, the genus of the bayberry.

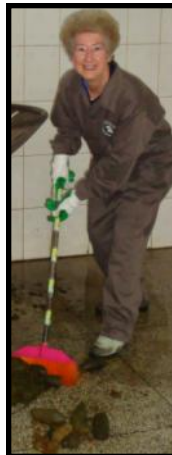


While the IUCN lists this bird of "least concern...not globally threatened," this individual representative of *Meleagris gallapavo*, probably a broad-breasted white turkey, came very close to human predation until pardoned by the White House at Thanksgiving, 2009. Instead of its usual farmland habitat, it currently

occupies a (very small) ecological niche, on exhibit at Disneyland, located directly behind the reindeer exhibit, where it provided, if not a meal, definitely Docent Enrichment to **Sally Pearne**, who attended a December conference in Anaheim.



This photo was taken in MAC by **Bunny Russell's** sister, Kate Giordano, who was visiting from Italy. Kate, seeing the ivory-billed aracaris and crimson-rumped toucanets approach Bunny's sneakers, warned her to stand still. "I couldn't believe my eyes' is a cliché. But I couldn't believe my eyes!!!"



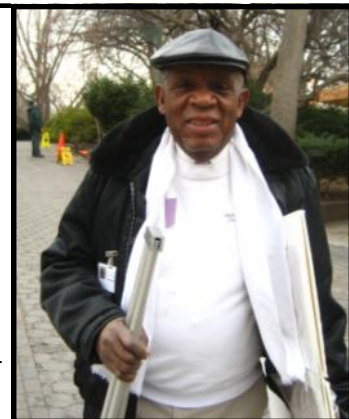
**Sharon Strauch** headed for China in October and spent eleven days at the Bifengxia Panda Reserve in SW China volunteering as a keeper's assistant. In addition to preparing carrots, apples and panda cake and "serving" it to the pandas, she also cleaned indoor and outdoor enclosures and provided lots of bamboo to keep the pandas happy. It was also fun spending five minutes in the panda kindergarten with the youngsters that were born in 2008. Sixteen pandas were born in 2009, which is helping the dedicated staff and keepers work towards their goal of increasing the number of pandas to a sustainable level to ensure the survival of these very endangered bears.



\* All pictures provided by article subjects

## Saying Goodbye

We are very sad to note the passing of Theodore Newman on Monday, November 2. Teddy was one of our new 2009 docents. He had joined the weekend team and looked forward to working with the Horticulture Committee as horticulture was, in his own words, "his true love." Before becoming a docent he had spent three years at the Barnes horticultural program and graduated from the Penn State Master Gardener and Tree Tender programs. Kate Benson Ho shared a Greek proverb that reminded her of Teddy: "A society grows great when old men plant trees whose shade they know they shall never sit in." Teddy will certainly be missed.



## Docent Provides Dental Aid

I spent two weeks in July volunteering to treat Native Americans on a reservation in North Dakota. I volunteered in Belcourt, ND on the Turtle Mountain Reservation of Chippewa Indians, 15 miles south of the Canadian border. The tribe has about 30,000 enrolled members with about 16,000 living on the reservation.

The Quentin N. Burdick Memorial Health Care facility has 29 beds and 11 physicians providing general surgery, ENT surgery, obstetrics and the only CAT scan in the area. The dental section is a completely modern twelve-chair facility, including digital x-ray and panorex. The hospital is run by the Indian Health Services (IHS), which is part of the Department of Health and Human Services. The auxiliary staff, including Expanded Function Dental Assistance, was all Native American. The hospital only treats Native Americans who have at least a 25% blood line.

I was impressed that everyone went out of their way with the best interest of the patients at heart and that the patients really appreciated what was being done for them. For me, it was a very rewarding and educational experience. I was able to travel and learn a lot more about Native Americans. It was something I would certainly consider doing again.

-Robert R. Singer, DDS

## Cell Phone Project Update

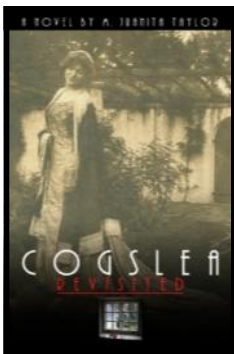
The Philadelphia Zoo has been on a mission to intensify our cell phone collection this year. Last year, Ruth Solomon and her committee initiated a program through the Sallie Teaf Endowment Fund to promote the docent cell phone project, Return the Call of the Wild, to four area middle schools. She received a second grant to continue her project for another year. Marilyn Steiner has worked tirelessly to promote cell phone collection through our boxes at the Zoo by acquiring better collection boxes and organizing give-away incentives for those bringing in cell phones during special events at the Zoo. She has most recently secured Zoo posters to give away to the first 300 people bringing a cell phone for the Return the Call of the Wild. The date for this will be announced. Marilyn collects the phones and takes them to be boxed and sent to Eco-Cell for redemption.

Conservation is the goal and "what goes around comes around." Everyone's collective effort is to advance an awareness of the benefits for the environment by collecting cell phones for recycling to keep dangerous chemicals from accumulating at dump sites, to reduce the mining of the mineral coltran (used in cell phones) which destroys the habitat of the gorillas in the Democratic Republic of the Congo, and to educate the public about how the refunded money from Eco-Cell is used for the Zoo's support of the conservation project for Douc langurs in Vietnam. That is a long sentence to highlight the many advantages of recycling cell phones. It is a "win-win" program that is easy to believe in and promote. Paralleling the rest of the economy, cell phone redemption reimbursements took a nose-dive. As a result, we are trying to increase our cell phone collection quantities so we can continue our support of these worthy goals.

The Conservation Committee welcomes all suggestions and efforts.

-Abby Pete

## Juanita Taylor Has Novel Published

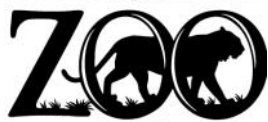


Juanita Taylor's (docent since 1981 and past president of Docent Council) first published novel, *Cogslea Revisited*, was published at the end of January and is available on Amazon.com. You may contact Juanita for more information or an autographed copy if you like. The following is a brief description as it appears on the back cover.

The "Red Rose Girls" – Violet Oakley, Jessie Willcox Smith, Elizabeth Shippen Green – might not have been the only female artists to live at Cogslea. In this novel Caitlin, an artist, is house-sitting at Cogslea when she finds herself on a quest to unlock secrets from the past. Eager to help in the adventure are Toby, an imaginative twelve year old; Maggie, the cleaning woman who talks to ghosts; and Caitlin's African wild dog, Malindi, who dreams in parables. But Caitlin will tell no one, not even her husband, Sam, of the radical method she will use to step through the portal of time to solve a three hundred year old mystery.

*Cogslea Revisited*, a story of love, tragedy and redemption, is woven together with touches of magic and mystery, enhanced by Cogslea's unique ambiance and colorful history.

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*DOCENTdata* is the Newsletter for, about and by the docents of the Philadelphia Zoo. We encourage all docents and Zoo staff to contribute original articles, photographs and illustrations that you feel have a wide interest.

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Please send all articles to Lyn Nec. Submissions may be edited for content, length, spelling and grammar. Please keep all submissions under 500 words.

Articles can be placed on diskette, sent via email to [glennnec@comcast.net](mailto:glennnec@comcast.net) or neatly printed or typed. Please include your full name on all submissions.

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If you have *any* observations, articles, suggestions or comments for *DOCENTdata*, please feel free to drop Lyn Nec a note via her Zoo mailbox or email.