The Avian Worlds of the Cougar Mountain Zoo
Issaquah, Washington

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Tucked into the evergreen-covered, rolling north side of Cougar Mountain in Issaquah, Washington is a miniature, earthy “solar system” in the making. Seven Worlds of the system exist and more swirl as ideas awaiting substance. As in an astronomical system, the existing Worlds are being renewed and replenished, responding to strong forces. Instead of gravitational, electromagnetic and nuclear forces that influence atoms and planets, these Worlds are influenced by the forces of dedication to quality, education, and conservation.

Cougar Mountain Zoological Park (CMZ) encompasses a little more than ten acres – a small but bright star in the constellation of Washington Zoos. It stands proudly among such world-class companions as Woodland Park Zoo in Seattle, Point Defiance Zoo and Aquarium in Tacoma, and Northwest Trek in Eatonville.

What is the Cougar Mountain Zoo and what makes it a special place?

One Small Step
CMZ was founded in 1972 by Zoo Director Peter Rittler and Mammal Curator Marcie McCaffray. It was originally developed as an educational facility associated with the Cougar Mountain Academy, a private elementary school, also founded by Rittler in 1962. As the Zoo grew, it was opened to the public by arrangement. The Zoo quickly became so popular that it was opened free to the public and separated from the Academy, becoming a non-profit, 501 (c) (3) tax-exempt, charitable organization in 1987. In 1988, admission fees were established as part of the program to generate financial support for the Zoo. CMZ receives no public funds and is supported solely through admission and program fees, membership fees from the Zoological Society of Washington, private sponsorship of benches, exhibits or animals (“adoptions”), participation in such programs as the Animal Tracks library, or engraved paving stones, and donations. In 2000, more than 60,000 people visited the CMZ.

From its conception, the CMZ was founded on a strong base of education. Rittler’s philosophy on the function of zoos has become one of the CMZ’s basic tenets: “The earth’s wildlife as we know it today can only be saved through intensifying the teaching of individuals and nations the practical, aesthetic and emotional value wildlife represents. No wild animal belongs in captivity... Zoo animals are instruments of the education process representing that last and vital frontier through which their wild brethren may be saved from extinction.”

To achieve its goals for education and conservation, the CMZ is active in the Puget Sound community, especially the area known as the Eastside (East Puget Sound in King County) where Issaquah is located. Workshops, classes, tours, lectures and Outreach programs are conducted regularly for school children and staff as well as for members, volunteers, and visitors. Internships for college undergraduates, or “externships” for graduates, designed to introduce students to the facets of Zoo operation, including medicine, animal husbandry, education, and administration, are offered. In addition, a catalog of classes, titled “Your Living Classroom” is available. The CMZ also has a program through which free admission tickets are provided to area schools. Over 30,000 of these tickets are provided every year.

In recognition of the CMZ’s excellence as an educational resource and its value to the community the city of Issaquah granted the Zoo the official status of “Issaquah City Treasure” in 1997 and the Mayor declared the first week of July to be “Issaquah Zoo Week.”

Excellence has also been recognized by such organizations as Mutual of Omaha’s Wildlife Heritage Trust, which awarded CM’s Orphaned Cougar Cub exhibit as one of the best in 1993. The Mountain Lion, Large Macaw, and Lemur exhibits at CMZ are considered among the top three, and the Siberian Reindeer collection one of the largest, of any zoo in the United States.

One Giant Leap
At the time the Zoo was first developed, a common strategy of
zoos large and small seems to have been to collect as many different animal species as possible – described by Rittler as a "Noah’s Ark” philosophy. CMZ also collected a large and varied number of animals. However, in 1996 the CMZ Master Plan’s philosophy was revised in favor of maintaining a smaller, more focused collection, concentrating on endangered species.

By specializing in selected species, the Zoo could achieve a higher level of quality-of-life for the animals and meet its goals of education and conservation more effectively.

As some of the facilities are now about twenty-eight years old, it is time to modernize – to bring the concepts and goals of the Zoo into fresh perspective. New habitat, exhibit, and grounds designs incorporate the most current information available. They will further improve life at the Zoo for the animals, facilitating care and maintenance for the Zoo staff, and enhancing the educational experience and enjoyment of the visitors.

As each new facility is completed, the animals will be moved from their current exhibits into the new ones. They will be given a period of adjustment, then their old homes will be removed.

THE WORLDS

Although in a state of change, the animal collection Master Plan projects seven Worlds within CMZ, two of which are Avian Worlds.

World of Mountain Lions
World of Reindeer
World of Lemurs
World of Cheetahs
World of Antelope
World of Cranes
World of Large Macaws

And there are special places for the other birds and mammals which have been at the Zoo for a long time: Formosa Elk, Alpacas, Emus, and a variety of psittacines.

Come with Director Peter Rittler, Curator of Birds Laura Marshall, and me on a virtual tour of the Avian Worlds of the Cougar Mountain Zoo!

THE AVIAN WORLDS

Avians in these Worlds are primarily domestically raised specimens. For the most part, they are doing well in aviculture, and their numbers in captivity are stable or on the rise. Breeding at CMZ does not take place for the purpose of increasing the numbers of these endangered species. It takes place to further the quality of life for the birds, and to provide a means to replenish the birds in the collection – through trade or breeding loan with other zoological institutions, or within CMZ itself – eliminating any need to collect birds from the wild for this purpose.

Currently, all aviaries stand independently, and are of different designs, having been constructed as the Zoo developed and the collection grew. Indoor facilities for all avians contain food and water stations, light and heat, and where applicable, nesting facilities.

The Zoo’s nutritional policies and procedures dictate that the birds’ diets include pelleted foods and vitamin supplements. Pellets are available to the birds at all times. The birds are also offered fresh fruits and vegetables, and nuts in proportions necessary to the species and to the health needs of the individual bird. Although the amount of pelleted food offered is approximately the same measure as that of fresh foods, the birds consume more fresh foods than pellets. To ensure the birds are taking in appropriate nutrition, fresh foods are offered in cycles. As a simplified example, calcium foods may be a focus in the food dish one day, then beta carotene foods the next, and so forth.

Treats (fresh foods and nuts) offered while the birds are on exhibit, to encourage, praise, or reward behaviors, are accounted for in the diet.

The birds’ medical and physical needs are overseen by the Zoo’s Medical Director, Dr. Charles Watson, as well as other avian veterinarians as needed. Strict hygiene protocols are adhered to. Stainless steel food and water bowls are disinfected and changed daily. The exhibits and surrounding area are washed and raked free of food or other debris several times each day.

Keeping outdoor aviaries, especially those with natural ground cover, clean and sanitary is a labor-intensive task. The cleanliness of the CMZ is a source of pride for Director Rittler and his staff. When asked how the exhibits were kept clean and sanitary, Rittler and later, Bird Curator Laura Marshall similarly, replied “You have to clean, clean, clean, and then you have to clean.”

THE WORLD OF CRANES

The World of Cranes currently consists of Sirsa a female Sarus Crane (Grus antigone), and a small flock of East African Crowned Cranes (Balearica pavonina gibberfrons). A third Grus species, the White-Naped Crane (Grus vipio) will be added to the collection at a later date. The current Crane and Emu outdoor habitats are made of 1.5” (3.7cm) chain-link fabric with open tops and concrete or stone features. The ground cover is compact dirt and granulitic.

The World of Cranes is projected to grow to ten to fourteen individuals. The new facility, currently in planning stages, will incorporate four outdoor habitats with semi-open tops. The naturalistic landscaping plan for these specialized habitats includes trees,
bushes, grass, sand, and rocks. A support building will contain environment-controlled indoor habitats, kitchen and nursery facilities, and feeding areas. Opportunities for viewing and photography will be excellent, and some viewing areas will be covered.

As these cranes have similar dietary and environmental needs, as described in the following brief species profiles, they work well together as part of a focused exhibit.

Sarus Cranes

Sirsaa was raised from a chick by Rittler along with two other female Sarus Cranes not at CMZ. Whenever Sirsa hears Rittler's footsteps or sees him approaching, she begins to “dance,” prancing and springing into the air, extending and folding her neck and wings, and calling to him. He pauses to greet her affectionately and calls back to her. Sirsa responds and follows him for as far as her enclosure will allow as we continue on our way.

Like others of the 15 types of cranes, Sarus are well known for their leaping “dance” and “call” displays. Dances seem to occur when the birds are generally excited, not just during courtship and breeding. The dancing seems to be “contagious” — when one bird starts dancing, many others follow. Individuals, pairs, or even an entire flock may dance. Pairs also dance synchronously. When birds call, they extend their necks, standing erect with wings folded and primary feathers drooping down. The call is complex and ululating, and is quite loud.

Sarus Cranes are the tallest of all flying birds, standing up to seven feet tall (2.15m), weighing about 18 pounds (8.18kg) with a wingspan of about 10 feet (3.08m). The Sarus is almost exclusive to the Indian subcontinent, although they can be found across Indochina, the Philippines, and in recent decades, Northern Australia.

In their native lands, Sarus Cranes are generally held in high esteem by humans — they are considered sacred in India, and in Vietnam, symbolizing fidelity, long life, and happiness. Sarus Cranes are also believed to bear worthy souls to heaven. Sarus Cranes are omnivorous, and in their native range are often kept in gardens to destroy pests such as insects, snakes and mice. They may also consume crop plants, which can put them at odds with farmers. Though they are held in high regard, Sarus are endangered.

The population of the Sarus is estimated to be between 8,000 and 10,000 birds. Of these, about 1,700 are found in the Western Indian state of Gujarat. Sarus Cranes preferred nesting habitat is wetlands, however two successive monsoon failures (1999/2000) have resulted in many of these areas drying up. Subsequently, there has been little or no food on which to raise chicks, and the cranes' nests, which the birds construct on rises protected by water, have been exposed to predation by natural predators, dogs and humans. This, coupled with the use of toxic pesticides, pumping of lakes for drinking
water, and habitat encroachment are taking a toll on the population of the cranes.

According to a Gujarat Ecological Education and Research (GEER) Foundation survey in 1989, the Sarus Crane population was about 1,878 birds. In a subsequent study released in 1999, the population had fallen to 1,730 birds. The Sarus Crane is on the endangered list of the global conservation agency IUCN and was included in Schedule IV of the Indian Wildlife (Protection) Act, 1972.

GEER Director H.S. Singh was quoted in the November, 2000 Times of India Online as hopeful regarding the future of the Sarus Crane commenting “All that is required is to make people aware of the threat to this wonderful species [italics mine] UANS).” (The Times of India Online; Health/Science; November 24,2000).

East African Crowned Cranes

The small flock of Crowned Cranes strut on long, stately legs. They raise their slender necks, their white and red face patches and bristling, golden crown feathers gleaming above their grey necks and dark bodies in a shaft of sunlight. They observe us as we pass by their exhibit, partially hidden from view by thick, trimmed bushes.

Interestingly, the Crowned Crane is one of the few members of the family Gruidae that roost in trees. Also of interest is the internal anatomy of the trachea. While all cranes have a long trachea, that of the Crowned Crane is five feet (1.5m) in length, half of which is coiled within the breastbone. The great length of this structure enables the cranes to give calls that can carry a mile or more. (San Antonio Zoo: Crowned Cranes)

Crowned Cranes are not as tall as Sarus Cranes, reaching a height of about five feet (1.5m). Like the Sarus Cranes, they are omnivorous, consuming such items as insects, frogs, worms, seeds and roots across the grasslands and wetlands of their home – Africa, south of the Sahara.

White-naped Crane

The third member of the World of Cranes will be the White-Naped Crane (Grus vipio). According to the American Zoo and Aquarium Association’s (AZA) Species Survival Plan (SSP) 1998 Fact Sheet, the White-Naped is considered to be the fourth rarest crane in the world with a population of only 4,900 to 5,300 birds. It is listed as an Appendix I species by CITES and a “vulnerable species” by the IUCN Red Data Book.

The natural range of this crane is marshland, wetland, and flooded meadows of Manchuria, Mongolia, the Amur River basin of Eastern Russia, the Demilitarized Zone in South Korea, Poyang Lake in China, and Kyushu, Japan.

Like other cranes, they have elaborate courtship rituals, including dancing displays and calling during their summer breeding season. Like the Sarus Crane, they build elevated nests on a small rise surrounded by water as protection from predators. While they are primarily vegetarians, they are also omnivorous, consuming such items as sedge tubers, seeds, insects, worms and amphibians.

Human persecution and habitat destruction are cited as likely to be the primary causes for decline in this crane’s numbers. In an attempt to save the White-naped, there are currently 36 institutions participating in the SSP in North America, managing their target population of 90 birds. Since 1994, AZA institutions have been sending surplus White-naped Crane eggs to Russia as part of a plan to rear the chicks and release them into the wild. Wild cranes are reluctant to utilize habitats near civilization, and it is hoped that chicks that have been somewhat accustomed to humans will not prove as hesitant. The AZA advises that the semi-wild cranes have successfully migrated and returned to raise young. The release program is being adjusted to decrease the imprinting and socialization of chicks to humans in response to this positive development.

The White-naped Crane has been designated a national monument in both Korea and Japan. Sanctuaries have been created in these countries and assistance is provided to the birds through feeding programs. The Demilitarized Zone itself is a benefit to the cranes as it is free of development, however growth along the borders of the Zone negatively affect the wetland habitat of wintering cranes. The AZA is hopeful that “continued public education programs, such as those reaching zoo visitors, will encourage further crane awareness and conservation.” [italics mine]

At this time, the Zoo is not planning to participate in the breeding and relocation plan of the AZA. White-napes at CMZ will act as ambassadors of their species, heightening our awareness of the importance of their conservation and that of their natural habitat.

A Special Place for Emus

Emus (Dromaius novaehollandiae) browse along a large enclosure containing a central rocky basalt formation and, in the back, their indoor habitat. The
Eas! African Crowned Cranes exhibit has the feel of a broad race track. The males, including one named Walter, are a little smaller than the females, which is normal for Emus. The small, fuzzy crest of feathers on top of the heads of the males is reminiscent of a long, wiry crew cut. The females’ crests are curlier, affectionately described as “frizzy” by Marshall. Walter moseys up to the enclosure fence to see what the humans are doing. The low, thrumming vocalizations of the Emus vibrate in the cool, misty Issaquah air. I say, “Emus are noted for running. Do these birds run inside their enclosure?” Marshall answers, “Oh, yes! You should see them run inside their exhibit. They can really go!”

The Zoo houses two pairs of Emus. Although not one of the designated Worlds, the Emus have been popular members of the avian program. The current plan is to retain them as part of the avian collection.

Emus are the largest bird inhabiting Australia, weighing up to 115 pounds (52.3kg) and standing about 5'6” in height (1.69m). They are second in size only to the Ostrich. The wings of the Emu are the smallest of all the flightless birds for its size, being only about one-tenth the length of its body. The feathers of the Emu are interesting. For example, some have two shafts. Due to the structure of their feathers, from a short distance the birds’ bodies appear to be covered with long hair.

Emus are running birds that inhabit open woodland, scrub and grassland. They can reach speeds above you see an excellent young female Hyacinth named “Manduvi” who was hatched on 13 March 1999 in the aviary where her parents “Cocha” and “Bamba” still reside. Note the weatherproof enclosure behind the huge open-air flight. The birds can pass from inside to outside and back at will or be restricted to one section or the other by the keepers.
American Federation of Aviculture

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of up to 40mph (50kph) for short distances and their stride can be 9 feet (2.77m) in length. They can also swim. Emus consume green-food, flowers, fruits and insects, especially relishing grasshoppers and caterpillars. They must ingest stones to aid the gizzard in digestion of food. Emu eggs are a beautiful green/blue color reminiscent of lapis-lazuli. Although eggs are produced, Emus at CMZ are not presently allowed to raise young.

**World of Large Macaws**

This World is the largest of the Avian Worlds and the primary Avian focus of the Zoo. Currently, this collection consists of twenty-seven macaws: two pair and four individual Blue and Golds (*Ara ararauna*), two pair and two individual Green-winged (*Ara chloroptera*), one pair and two individual Hyacinths (*Anodorhynchus hyacinthinus*), one pair and one individual Scarlet (*Ara macao*), two individual Red-fronted (*Ara rubrogenys*) and one Blue-throated (*Ara glaucogularis*). The plan for the future includes acquisition of additional Red-fronted and Blue-throated Macaws.

In addition to the large macaws, other parrots at the CMZ include: one pair and two individual African Greys (*Psittacus erithacus erithacus*), two Double-Yellow-headed Amazons (*Amazona ochrocephala oratrix*), one Tres Marias Amazon (*A. o. tressmariae*), one Yellow-collared Macaw (*Ara auricollis*), one Thick-billed Parrot (*Rhynchos psittaca pachyrhyncha*) and one Moluccan Cockatoo (*Cacatua moluccensis*). These parrots will remain part of the CMZ’s avian collection and exhibits.

Outdoor Parrot facilities are constructed on raised high-density concrete and are completely enclosed in 1” (2.5cm) chain-link fabric. Aviaries are of several sizes to accommodate the different sizes of the occupants. They are equipped with uncomplicated perching and swinging devices containing easily replaceable untreated pine 2x3 (5cm x 7.5cm) lumber for chewing. The chain-link construction facilitates climbing, which the occupants seem to enjoy.

A few steps past the Emu exhibit, down a neat, pea-gravel path we come across the first two of three largest of the eleven Macaw aviaries. These two aviaries are 9’ wide x 15’ long x 11’ high (2.77m x 4.62m x 3.38m), large enough to allow their paired occupants several leisurely wingbeats of flight from one end to the other. The first aviary’s current residents are a pair of Blue and Gold Macaws. The next aviary houses local celebrity Green-winged Macaws, Rocky and Rosie. Straight ahead is the third and largest aviary, measuring 18’ wide x 28’ long x 13’ high (5.4m x 8.6m x 4.0m). This aviary is home to Hyacinth pair Cocha and Bamba. Cocha, a female on loan from the San Antonio Zoo, is one of the wild-caught residents of the CMZ. Rocky and Rosie, who are experienced parents, fostered Cocha and Bamba’s first offspring, a female named Manduvi, hatched on March 13, 1999 who also resides at CMZ.
At this point, we have reached a long straightaway with aviaries on both sides, and two exhibits. The first is a variety of unrestrained (wings clipped) macaws attended and supervised by staff and volunteer keepers. Their perches are made of untreated pine 2x3s (5cm x 7.5cm) for chewing, and the enclosure is topped with a pre-formed aluminum dome roof to provide some protection from the elements. Protocols are in place to ensure the birds remain comfortable outside, and the environment on this somewhat cool and rainy day is monitored. The parrots will be returned to their indoor habitats if the weather reaches determined limits or if the birds seem to be uncomfortable. Any parrot who seems to be uncomfortable on exhibit for any reason is removed and returned to an off-exhibit aviary or the indoor habitat. Not all parrots are always on exhibit at the same time. The birds are rotated to ensure there is plenty of opportunity for eating, drinking, and just to have some time-out from being on exhibit.

There is a fine mist of rain, and the parrots are flapping and preening in the natural shower. All the parrots in this exhibit are unpaired. Green-wingeds Tambo and Pata, Blue and Golds Chiquita, Rio, Ejea and Oiseau, Scarlet Kiwi, and Hyacinth Payaso are out and appear to enjoy the human visitors as much as we are enjoying them. Tambo and Pata are avian gym-nasts and maneuver themselves to hang upside down from one claw, twisting as if to watch the reactions of the visitors. Payaso holds one wing cooly up to his turned face and says “peekaboo!” in a childlike voice. He seems to take delight when visitors mimic him as they peer over their jackets or hands. Chiquita is another CMZ celebrity. She waves one foot in a “princess wave” and then waves her wing in a broad hello. Kiwi is very digni-fied, and munches a “cracker” (pistachio nut).

Across the path, a pair of Military Macaws blush and court in their aviary. “This open-perch exhibit gives visitors a chance to be close to the parrots and ask ques-

ions of our staff and volunteers,” says Marshall. “Of course, Zoo rules and staff ensure visitors do not touch, feed or tease the parrots or any other animal in the zoo.”

Manduvi, the young Hyacinth, is brought out to meet me along with her album of “baby pictures” taken from hatching through present. The respect for, pride in, and dedication to care for Manduvi and for all the avian collection, so apparent in all of my visits to CMZ, really shines through. “We give all our birds a name,” says Marshall. “The Zoo is a great size for getting to know the individual personali-ties of all the birds and relating well to them. We feel this special relationship is one of our strengths. Some of the birds are especially comfortable with groups of people, or do well in groups when with certain of their keepers. These are the birds selected to go on Outreach programs to schools or other groups in the community.”

Farther down the path is a second exhibit of parrots in enclosed habitats – also un-paired birds. These are primarily the non-Macaw psittacine residents although the Yellow-collared and the Red-fronteds are exhibited here. The exhibit begins with Molu, the celebrity Moluccan Cockatoo. Each parrot in this exhibit has an individual suspended enclosure with food and water dishes and a 2x3 (5cmx7.5cm) untreated pine perch. The Yellow-collared Macaw, one of the Red-fronted, two African Greys, two Double Yellow-heads, the Tres Marias Amazon, and the Thick-billed Parrot are entertained by visitors and wild birds building nests in clumps of bamboo and thick, trimmed bushes dotting their exhibit.

I ask Marshall, “What would you like to communicate to people about your Parrot program?” She answers, “In addition to our focus on education and conservation, I would like to be sure people know our Zoo environment is a very special place. We don’t want visitors to go away with the perception that they can now go out and buy a macaw and a T-stand or cage and set it
up in the living room along the same lines as we have in these exhibits and expect the parrot will be happy just staying on it or in it. For example there are no toys in the exhibit enclosures. This is mostly to encourage the birds to interact with people and the sights and sounds around them. Behavior enrichment equipment is provided in off-exhibit habitats. Non-toxic trees and plants that might 'dress up' the look inside the exhibits would quickly be destroyed by the birds, requiring constant replacement on a large scale. Soil the trees or plants are potted in might contain contaminants or foreign objects. All our plantings are outside the exhibits. At our Zoo, the birds get a lot of exercise and social interaction with the keepers every day both on and off exhibit. The exhibit birds are 'entertained' by visitors, other exhibit birds, and aspects of the environment – wind, clouds, rain, and sunshine. The paired birds interact with humans, each other, and their chicks. Parrots are intelligent and require mental stimulation, social interaction and room to exercise."

The future World of Macaws complex has passed the planning and permit stages. Although the Zoo does not yet have all of the projected cost of $1.2 million, construction of some of the components has begun. The complex will consist of fourteen indoor and fourteen outdoor flights arranged into a rectangular concrete and block building. There will also be two separate large aviaries. The floors will be constructed of high-density concrete, with specially designed drainage in each habitat to facilitate cleaning and sanitation. Each habitat will include windows to allow sunlight into the enclosures, misting equipment, and guillotine doors for the protection of the birds.

All flights will be enclosures of 1" (2.5cm) stainless steel mesh. The larger outdoor flights will measure 10' wide x 40' long x 10' high (3.08m x 12.31m x 3.08m). The smaller outdoor flights will measure 10' wide x 16' long x 10' high (3.08m x 5.20m x 3.08m). Glass sides will provide shelter from wind while allowing visitors optimal opportunity to observe the birds.

Larger indoor flights will measure 8' wide x 23' long x 10' high (2.46m x 7.08m x 3.08m). The smaller indoor flights will measure 7' wide x 8' long x 10' high (2.15m x 2.46m x 3.08m). The complex will also include an atrium area with 24 outdoor open-perch exhibits for close-encounter viewing.

In addition to food and water stations in all habitats, each indoor habitat will include behavior enrichment equipment and bathing facilities, lighting and radiant heating. The complex will include nursery and medical facilities. Pairs will be provided specially constructed boot style nest boxes with removable panels, seamless frames, and video surveillance cameras. As we look at the blueprints and discuss the details, Rittler, Marshall and the Zoo staff are excited about the improvements for the Large Macaws and for all the planned World upgrades.

The strong forces of dedication to quality, education and conservation are reshaping the Cougar Mountain Zoo, but nowhere in the new plans will the individual attention to visitors, professional pride of the staff, or the intimate, relaxed quality of the Zoo be diminished.

Thanks for coming on this virtual tour with us. The next time you are in the Seattle, Washington area, take some time to enjoy a real visit to the Cougar Mountain Zoo. All these Worlds and more will welcome you.

To find out more about the Cougar Mountain Zoological Park, please call (425) 391-5508 or visit their website at: http://www.cougarmountainzoo.org