THE FUTURE AND ETHICS OF ZOOS

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About one million of all species of living things are found only in Australia: 85% of our flowering plants, 84% of our mammals, 45% of Australian birds are found nowhere else. In the last 219 years we have been losing them at a rate of extinction unparalleled in human history. Hundreds of species have disappeared since European settlement; almost half of the world's total mammal extinctions in that timeframe occurred in Australia. Of our 85 identified bioregions, 94% contain at least one ecosystem threatened with extinction. 3,000 bushland ecosystems are disappearing, taking 1,500 species with them (Sattler 2002).

Australians are producing more pollution per capita than any other nation in the developed world: double the average rate, and 27% more than Americans (Peatling 2004). Meanwhile, for every tree planted by community volunteers in Australia, 100 more are bulldozed (Sattler 2002).

Today, children have access to glittering and moving images of wildlife beyond anything experienced by any generation in human history, and they assemble more facts for homework projects about dinosaurs or tigers than their grandparents accumulated in a lifetime. Yet their direct knowledge of the natural world, and especially of local wildlife, is rapidly disintegrating (Hancocks 2001).

Their separation from a real world is almost complete. A survey of 1600 schoolchildren in Western Australia found that 1 in 5 believed they did not need farmers. Only half of them believed that the food they ate for dinner came from a farm (Kondonin 1997).

Meanwhile the bulk of our prosperity is built on marketing, political, and corporate strategies that give no account to the Seventh Generation, let alone the Seventieth. On my first visit to Alice Springs last year I commented on the town's profligate use of water. I was told not to worry: they have an underground water cell that will last for a thousand years. With that attitude, Australia's Aborigines would have run out of water tens of thousands of years ago.

A RESPONSIBILITY SHARED IS NOT A RESPONSIBILITY HALVED

Our natural history institutions have a fundamental responsibility to tackle such problems. They need to do all they can to create a citizenry with a better knowledge base, a greater sense of compassion, a stronger commitment to care, a deeper sense of connection to the world of nature; and a fuller understanding of our place in it.

We have a broad palette of such institutions: botanic gardens, arboretums, public aquariums, marine parks, zoological parks, and a variety of specialist natural history museums. But each one of them deals with separate parts of nature.

I believe we need a new type of institution: one that reveals a holistic and integrated story of nature, not just isolated chapters. But cities with an established botanic garden, a natural history museum, a zoological park, and-or an aquarium, are unlikely to welcome a new institution that might supplant or compete with them.

The only possibility, then, is for existing institutions to metamorphose into a new form; and zoos may present the best opportunity for that.

I do not arrive at this view with much enthusiasm. I've been involved with zoos for more than thirty years and am well aware of their deep conservatism, their general lack of intellectual and scientific rigor, and, in the past two decades, their lurch towards a corporate mentality with an intensifying focus on attendance statistics and entertainment.

Nonetheless, zoos may have better capacity to change than any other natural history institution. This is because they have live animals. They could absorb the specialist components covered by aquariums, botanic gardens, natural history museums, even science centers, whereas those institutions could not develop a collection of live animals to any notable degree.

The biggest changes zoos would have to make are attitudinal. I'd like here to briefly outline eight areas for such change.

1: RECOGNIZING THAT NATURE IS THE NORM

Zoos judge their standards only against other zoos and their own past. They do not measure themselves against nature. Yet nature, assuredly, is the norm. It is the yardstick to assess the quality of life for zoo animals and the quality of experiences for zoo visitors.

Scientists who have studied elephants in the wild, some for several decades, now increasingly declare that urban zoos cannot provide satisfactory conditions for elephants. But zoos, mystifyingly, have responded by saying these scientists only understand wild elephants, not zoo elephants; as if they were different species.

Thirty years ago, in Seattle, I was fortunate to be part of a team that created the first zoo plan based upon bioclimatic zones, putting animals in landscapes that looked and felt as much like natural habitats as possible.

Our intent for the animals was to maximize their ability to carry out natural behaviors in large and complex natural spaces, amidst landscaping and terrain sufficiently varied to hide from each other or from the public if they wanted to.

Our intent for visitors was to enhance their sensory, esthetic, and intellectual involvement with the habitat. We reasoned that if they were immersed in a habitat and simultaneously saw animals from that habitat, they would form a subconscious connection between the two; they would better comprehend that losing a habitat meant losing its animals.

With rare exception, other zoos hated all this. They saw no sense in giving space to plants; disliked the unkempt appearance of naturalism; and balked at the notion of giving animals

large spaces. Even now, the *quality* and the *quantity* of space for zoo animals are still unresolved problems, and form the zoo world's most important and unfortunate dilemma.

2: ANIMAL NEEDS COME FIRST

A few years ago a major American zoo hired a senior curator as an advisor for a new jaguar exhibit (Seidensticker and Doherty 1996). They told him they wanted to display the jaguar lying by a pool in the tropics. For this they had allocated about 25 square metres. The curator advised that this small space would engender "excessive stereotypic behavior in the jaguar." The zoo, however, insisted that the space was adequate, and proceeded with its construction. Their wish for a theatrical display was more important to them than the behavioral needs of the jaguar. This attitude, sadly, is ubiquitous.

In 1976, as part of Seattle Zoo's bioclimatically based zoo plan, we built the world's first naturalistic exhibit for gorillas. Other zoo directors warned us against it. They predicted that the animals would kill all the plants. They also said the animals did not need so much space. And I was told it was irresponsible to allow the gorillas to climb trees, from which they could fall and break their necks. Those zoo experts refused to believe our more natural approach could work, or to believe it when it clearly did.

Twelve years passed before any other zoo even attempted a similar approach, in Dallas, and in Melbourne, at the end of the 1980s. Then San Diego Zoo finally roused sufficient bravery to also follow.

Now, zoos worldwide boast about their green revolution. Lush plantings are indeed commonplace but, frustratingly, they usually serve only as a backdrop. They look nice, and make visitors feel better, but it is a deception. The animals are typically kept away from the plants, and constrained on open view, by electric wires and other hidden methods. The quality of their space is often not necessarily better than it was in the old zoo cages.

Some exhibits that look like a natural habitat are in fact made entirely of cleverly disguised concrete. I've even seen leaves made of steel.

Every zoo exhibit design should instead start with the premise that the animals' needs are paramount. In the hierarchy of conflicting requirements between animals, staff, and visitors, the animals' needs must at least be held equal if not ahead of all others.

But zoo animals' needs are usually the first to be compromised. In recent years marketing and promotion directors have gained seniority in zoo management structures, and often have greater say in exhibit design than the curators. Their top priority is not the animals' needs; they simply want them up close and on view.

3: TREAT THE VISITOR'S INTELLECT WITH RESPECT

Zoos could usefully strive to replicate the joy and the serendipity of experiencing animals in nature – that wonderful mix of aesthetic delight and emotional pleasure that comes from finding animals in their own world engaged in their own activities – and to add to this the intellectual fascination from understanding more complete stories about the natural world.

But the simplistic aim of modern zoos is to attract hordes of visitors to whom they offer non-organic, non-fair-trade, non-free-range food items, and who they entertain by revealing little more than the size, shape, and color of the animals in their collections.

Instead of always developing exhibits based upon animals as objects, zoos could usefully tackle the challenge of building exhibits around ideas and concepts – such as interdependence, deep time, extinction, and evolution as examples.

For this, zoos could advantageously borrow museum and gallery exhibit techniques, and use microscopes, 3-D models, dioramas, jewel box exhibits, and a diversity of art media and moving image technology. Their collections could include not just animals but also bones, shells, nests, seedpods, flowers, geology specimens, all to support stories, to foster intellectual connection, and to encourage esthetic delights of the world of nature.

Zoos do themselves and their society a disservice by creating an atmosphere in which visitors approach them only with a mindset of social recreation, rather than of intellectual discovery.

4: IT'S THE LITTLE CREATURES THAT RUN THE WORLD

Zoo collections are not only restricted to animals, they focus intently on big animals. Some even still say that a zoo without an elephant can't consider itself worthy of being called a zoo.

They ignore the little animals that run the world, even though those creatures often have the most fascinating lifestyles. Indeed, invertebrates, with their greater biomass, often play the most critical role in the ecology, and more perfectly illustrate many pertinent stories.

I've sometimes asked people to quickly name as many animal species as they can. Few can list more than twenty. Typically, they name the common zoo species; that small group made up almost entirely of big exotic mammals. If two hundred years of public zoos have produced only this trifling level of awareness, something is basically wrong.

Zoos fear that if they don't have big animals they won't have big crowds. Yet there is no need for zoos to abandon all their big animals. They simply need to give them much larger spaces of greater complexity. Meanwhile, more attention to small creatures would increase the levels of interest and diversity for their visitors.

This approach could also be more useful, for conservation biologists have formed cogent arguments that zoos would provide a better and more effective service to wildlife conservation by breeding small animals (Balmford 1996).

About thirty years ago conservation biologists at America's National Zoo began developing breeding programs for many small mammal species, such as several types of bats, cavies, tamarins, marmosets, elephant shrews, degus, coendus, acouchis, and dwarf hamsters. They distributed the offspring, and the required husbandry protocols, to other zoos. By 2000, there was not one viable population of the species in that program within any North American zoo (Kleiman 2007). Most zoos have abandoned small animals, and expertise in their husbandry has all but disappeared.

A narrow attention on big mammals, a disregard for ecology, and a view of the plant world as just background wallpaper, all reflect deep problems in modern zoo philosophy.

5: DON'T JUST BREED ANIMALS; BREED MORE COMPASSION

Zoos routinely describe animals such as elephants, tigers, and gorillas as their Flagship Species, claiming they act as Ambassadors. The director of London Zoo recently announced: "Zoos have an incredible power to inspire people. Getting close to the animals changes the way you think and feel about them" (Moreton 2007). Most zoos make such claims, as if it was a proven fact.

However, a professional literature search last year found that "no systematic research has been conducted on the impact of visits to zoos and aquariums on visitors' conservation knowledge, awareness, effect, or behavior" (Diesking 2006)

Indeed, it is quite apparent that the millions who visit zoos every year make no follow-up changes to their lifestyles to assist wildlife, or start to make a real contribution to wildlife conservation.

Seeing an animal is clearly not a precursor to developing empathy for it. Millions of Australians feel admiration and affection for whales, and want to protect them. Yet few have ever set eyes on a whale.

Nor is close contact any guarantee for compassion. Some zookeepers, in daily contact with elephants for years, routinely jab them with metal hooks to dominate them and teach them discipline. In a recent incident at one of Australia's major zoos an electric cattle prod was allegedly used to teach a male zoo elephant to show respect for his torturer.

Moreover, the constant booming that echoes from the zoos' quite empty conservation barrel may actually be doing a disservice to wildlife. Zoos always loudly promote their endangered species births, saying it contributes to saving the species. My fear is that people hear these stories and are then happy to believe they don't have to worry, because their local zoo is saving the world's endangered wildlife.

6: LEAD BY EXAMPLE

Zoos routinely say they have become Conservation Centers, and claim that conservation is now their central purpose. But "conservation" for most zoos is only a synonym for "breeding." In truth, hardly any animals born in the world's zoos are returned to the wild. Breeding zoo animals is basic sound business: zoos must breed animals merely to preserve their collections.

The coordinated program for breeding endangered species in American zoos is called the SSP – the Species Survival Program: but SSP would more accurately serve as an acronym for Self Supporting Project. It produces endangered animals only for the maintenance of zoo collections.

It is frustrating that zoos in fact are not especially deeply engaged with Conservation. They have not been at or even near the front line in developing or promoting sustainability. When purchasing motor vehicles, carpet, paints, cleaning fluids, building materials, fuels, paper and inks, even their gift shop inventories, the principal selection criterion for zoos is the dollar cost. They rarely if ever use conservation criteria when assessing contracts for their printing, packaging, construction, cleaning, or energy use.

A change in philosophy and attitude here could make a huge difference in the credibility of zoos as conservationists, in their conservation effectiveness, and in their influence upon visitors.

Interestingly, if zoos regarded not conservation but animal welfare as their central goal, they might actually become more effective conservationists. The exhibits, interpretation strategies, education programs, husbandry, and collection management techniques would all be quite different in a zoo focused upon welfare.

Taronga and Melbourne Zoos, for example, recently imported wild elephants from Thailand, at vast expense, for what they claim to be entirely conservation reasons. Zoos devoted to improved welfare would not do this. Indeed, zoos with a strong welfare philosophy would not contain elephants at all. Certainly Taronga Zoo's new $50 million elephant exhibit, for example, would not be confining five elephants in just one fifth of an acre if animal welfare was a primary concern.

A zoo that aimed to elevate concern for welfare could produce visitors with heightened sensitivity and empathy. And those people would surely then give more attention to ensuring the survival, security, and prosperity of wild animals.

7: THINK GLOBALLY, ACT LOCALLY

Think globally, act locally has become a cliché, but it is still an invaluable mantra.

If we all took better care of our own backyard the planet would be a healthier place. To their credit, Australian zoos are better than many in breeding native species for release. But they are characteristically silent on local conservation issues.

Sometimes that silence is deliberately enforced. The native grasslands west of Melbourne, and the many small animals that evolved to live in them, have all but disappeared. Victoria's western grasslands are now the most endangered habitat in Australia. A few weeks ago a radio show discussed the impacts of a proposed housing development at Laverton, and a listener called to say that when visiting the Werribee Zoo a tour guide had advised that people should lobby against it.

Staff quickly received a memo warning that because of potential "ramifications" with the Environment Minister and the local Council, "opinions of this nature should not be expressed." Rather chillingly, the memo stated, "If anyone queries this they are to make time to chat" with the director.

The memo closed with the message automatically appended to their every email: “Zoos Victoria builds enduring relationships between people and wildlife, for a future in which humans live in balance with the natural world.”

Zoos loudly position themselves as leaders in wildlife conservation. In truth, a variety of NGOs and government agencies are the ones most successfully engaged in wild habitat restoration and reintroduction of wild species. Zoos play an occasional minor role, and for this want all the glory. Only two zoos, the Bronx Zoo in New York, and the Durrell Zoo on the Isle of Jersey, are engaged in global wildlife conservation to any significant degree. Much of their activity is devoted to protecting wild habitats, which is the best way to save wild animals.

Other zoos may not be able to become so involved in global wildlife conservation, but all zoos could beneficially concentrate on generating dialog, promoting, and creatively assisting with local conservation issues, and thereby make notable contributions.

8: GREATLY BROADEN THE BASE

Zoos unfortunately display a very skewed and inadequate view of nature. Their collections focus on a very narrow segment of the animal kingdom, and their window on the rest of the natural world is simply empty. They offer no interpretation of plants, not even of the pollination story. They offer no views on evolution, no coverage of past or future global extinctions, expose no interest in paleontology, or of any aspect of earth sciences.

Indeed, their involvement in any of the sciences is negligible. Veterinarians are usually the only staff members with significant scientific training, and that is limited to physiology. With hardly a PhD in sight, and very little evidence of scientific process, even of worthy libraries, zoos in their present state are worryingly bereft of intellectual curiosity.

In this regard zoos have much to learn from the museum community’s history of scientific research. Similarly, there are critical lessons for zoos in the long-term perspective that typifies curatorial care in botanic gardens. Zoos have lost too many species collections from lack of foresight, and the situation is worsening.

In recent times we’ve seen increasing reversion to the braggadocio of the zoo showman: a character whose two main interests are the turnstile and his own ego. Such types have made frequent appearances throughout zoo history, and nowadays are often cloaked as a conservationist. This stance may be the greatest impediment to the possibility of introducing science and intellectual pursuits in zoo leadership.

POTENTIAL BENEFITS OF VAST IMPORTANCE

If zoos do metamorphose, and adopt some of the qualities and activities of natural history museums and botanic gardens, a broadening of staff disciplines will be one of the crucial areas of change.

If botanists, geologists, and ecologists joined the zoo teams we might see wonderful things happening. An amalgam of such specialists could demonstrate not only why nature is wonderfully fascinating but also why it is fundamental to our own well-being.

With a new focus and a wider skill base, zoos could introduce a greater awareness and comprehension of nature, and reveal its complex interdependencies and its interconnected systems, and demonstrate why nature is our best guide for a more complete and satisfying journey through life.

Perhaps, with all these changes, zoos truly could enliven the minds, enrich the hearts, and feed the souls of those millions who visit them each year: those millions who no longer have contact with and are hungry for a clearer understanding and better connection with that other world of nature.

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