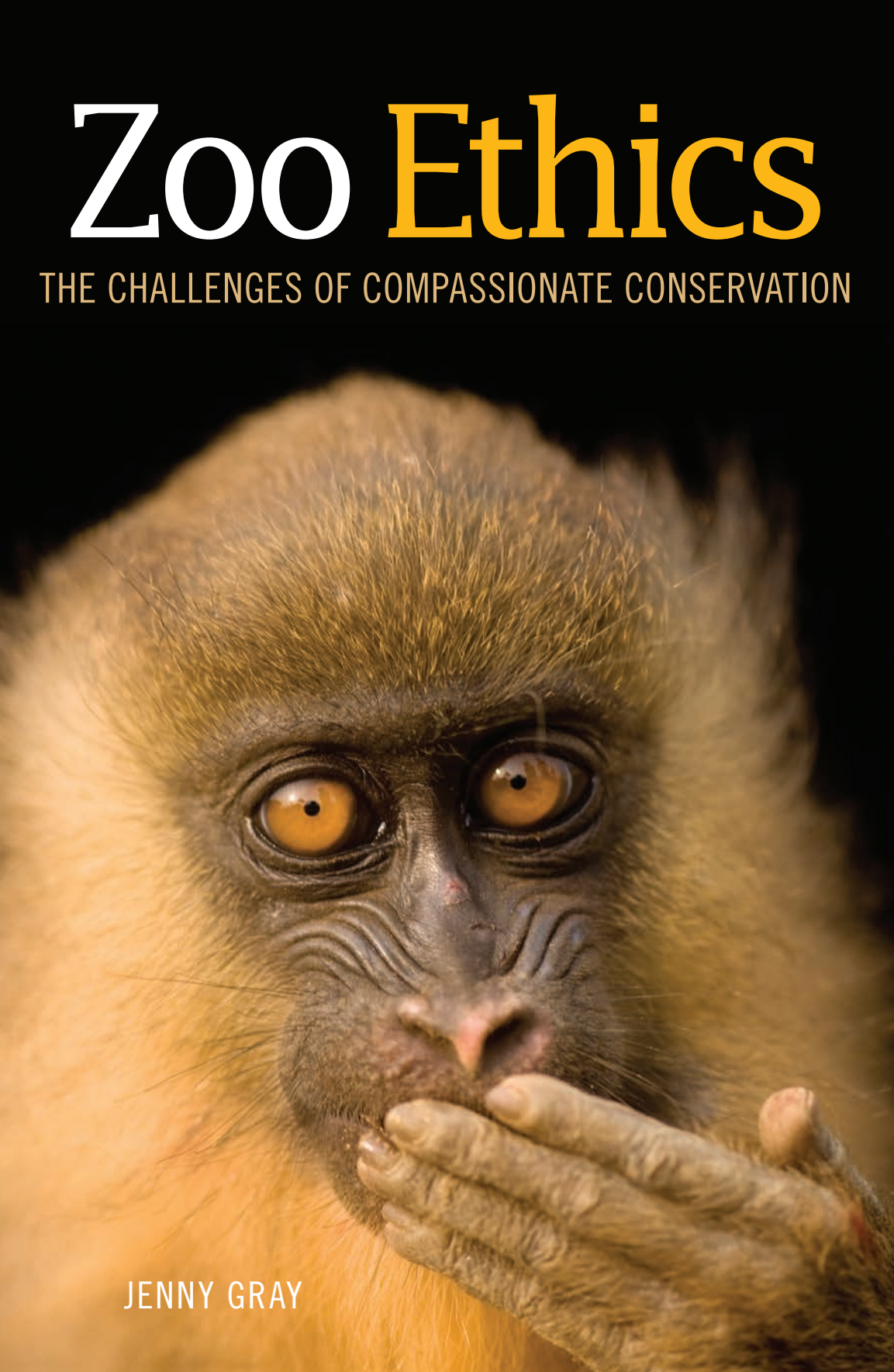
Zoo Ethics

THE CHALLENGES OF COMPASSIONATE CONSERVATION



JENNY GRAY

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CSIRO Publishing
Locked Bag 10
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Telephone: +61 3 9545 8400
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Foreword

What good is a zoo?

When I was a boy in the late 1960s, I wanted to be a zoo keeper, or better yet, a zoo *owner*. It was all I could think about. How amazing to be surrounded by a wild menagerie … the most interesting animals, in every color of the rainbow, cherry-picked from every continent. Every day would be wonderful, and an opportunity to collect more and more exotic creatures.

Things didn't turn out quite as I imagined. Good zoos aren't menageries any more; they're conservation centers. And though I do work in zoos, and collect animals, it's not in any way you might expect.

A quarter century ago, I became a *National Geographic* photographer specializing in conservation stories that sought to make the world a better place. The plight of grizzlies, wolves, koalas, even the *Deepwater Horizon* oil spill – I covered them all in a quest to save the world. Yet few seemed to move the needle of public opinion.

And then, a dozen years ago, my wife got breast cancer, and for the first time in my career, I stayed home for an entire year. Taking care of Kathy and our three kids became my full-time job rather than picture taking.

Sometimes at day's end, I thought back through all my travels. I'd seen a lot of damage being done to the environment, and to all creatures great and small. Story after story were moved aside by the next issue of the magazine, exactly one month after they first appeared. What could I do that would make a lasting difference?

Kathy's treatment went very well (she's fine to this day) and the answer of what to do next eventually came to me, in a simple but daunting proposition: what if I tried to do studio-style portraits of every captive species on Earth? Could we get the public to care about the extinction crisis, and be moved to action, while there's still time?

It was worth a try, and I called the project, 'The Photo Ark'.

I use black and white backgrounds to eliminate all distractions, look animals directly in the eye, and level the playing field. In the Photo Ark, a mouse is every bit as large, and remarkable, as an elephant.

Since then, 11 years have passed. I've worked on six continents at more than 300 zoos and aquariums, private breeders and wildlife rehabbers, all to put a face on biodiversity. We're about halfway done now, with 6500 species onboard the Ark out of the approximately 13 000 in human care.

And you know what I've discovered?

Zoos are the real arks now.

It's true. Many of the species I photograph would be extinct without captive breeding efforts. Zoos serve as reservoirs of genetic material, patiently working towards the day when the wild is safe enough again to return species.

In the meantime, zoos also provide funds for critical in-situ work like anti-poaching patrols and habitat restoration.

But of equal importance is the connection zoos provide to the public, especially school children. They inspire us to care.

It's so easy to be distracted these days with all the noise and clutter of television, the web, video games, you name it. Zoos and aquariums provide visitors with a place they can actually slow down and concentrate.

Here one can actually focus for a few hours on what live animals look like, sound like, smell like, and even what they feel like in the case of outreach animals. Especially for people in urban areas, zoos and aquariums are vital to maintaining our understanding, and empathy, towards the other creatures we share the planet with.

Dr Jenny Gray examines the ethical dilemmas zoos may face, and she's certainly right to do so. But imagine for a moment a world without any zoos at all, one with no wild animals in captivity.

In just a generation, children would be reduced to viewing wildlife as some quaint notion from the past that only lives on an electronic screen. Without a personal connection, they wouldn't care much what happened 'out there', and as adults they certainly wouldn't be moved to make thoughtful choices (let alone sacrifices) in terms of their carbon

footprints, their consumer spending, or whether their businesses were being run in an environmentally friendly way.

Without education and compassion, it would be exponentially more difficult to save the mammals, birds, reptiles, amphibians, fish and invertebrates that we all know today. And just who would be left to protect the remaining jungles, rainforests, prairies, oceans or much of anything else for that matter? People simply won't care about, or work to save, what they've never met.

Without zoos to keep inspiring us, final incursions into the last intact wildernesses would begin, with roads, mining, logging, housing, erosion, pollution, the works. With a human population on its way to 10 or 11 billion souls, industrial agriculture (the crops and animals we eat) would become all that matters.

And so what do zoos really have to offer?

Hope.

Hope that with each new group of school kids entering a zoo, we light a fire, and get them to care, not just that happy day but all their lives.

Hope that we will save intact tracts of wilderness, not just to save the animals within, but to regulate the planet's atmosphere, including temperature and rainfall.

Hope that we continue to care about 'the least among us'. That bee or butterfly pollinates flowers, fruits and vegetables, provides food for other living creatures higher up the food chain, and brightens our world immeasurably. In my opinion, they have as much right to exist as you or I do.

And one final, hopeful thought.

The day will finally come when humans realize this powerful truth: when we save other species, we're actually saving ourselves.

Joel Sartore
Photographer and Fellow, National Geographic Society
Founder, The Photo Ark

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Photo Ark

Joel Sartore has a mission, to document every species on the planet. Joel works in zoos to create the beautiful portraits of animals that you see in this book. His work is a Photo Ark capturing the joy, beauty and diversity of life on earth. Without zoos, Joel would be challenged to get close and even to see many of the animals that he photographs.

Zoos benefit from Joel's work in bringing the plight of threatened species to millions of people through *National Geographic*, amazing light and sound shows and in a range of advertisements and illustrations.

I am very grateful that Joel agreed to share his photo for the cover of this book and his passion for animals. Please check out his work and support the inspiring Photo Ark project.

Preface

Zoos have been a largely uncontested part of the social fabric of cities for over 2000 years. The nature and form of zoos have changed as sentiments and wealth of nations have changed. While providing a place where animals and humans come into contact, zoos continue to hold and display animals in a relationship of vulnerability and dependence. Increasing threats to wild populations, public pressure to justify captivity and shifts in attitudes have resulted in modern zoos adding research and conservation outcomes to their traditional benefits of recreation and entertainment. Yet a lingering question remains: can modern zoos be ethically justified?

This book describes the workings of modern zoos and considers the core ethical challenges that face those who choose to hold and display animals in zoos, aquariums or sanctuaries. Using several normative ethical frameworks or ideals, I explore the impacts of modern zoos, including the costs to animals in terms of animal welfare and the loss of liberty, and the value of animal life. On the positive side of the argument are the welfare and health outcomes for many of the animals held in zoos, increased attention and protection for their species in the wild, and enjoyment and education for the people who visit zoos.

I conclude that zoos and aquariums may be ethically defensible when they align conservation outcomes with the interests of individual animals and the interests of zoo operations. The impending extinction crisis requires large-scale interventions that address human values and facilitate consideration of wildlife in decision making. Considering the long-term relationship zoos have with animals, their extensive reach within communities and their reliance on animals to deliver positive experiences for people, it is appropriate that zoos pay back some of humanity's debt to wildlife by making a meaningful contribution to wildlife conservation. Compassionate conservation demands that this contribution is not at the cost of individual suffering, but rather that the interests of individual animals are aligned with the actions taken to save species.

Acknowledgements

I am indebted to my husband, Richard Seddon, for taking this journey with me and always being encouraging and supportive. Richard has endured countless discussions and lectures on the ethics of zoos with grace, good humour and sage advice, allowing me the luxury of a sounding board to progress or terminate lines of argument. Andrew Alexandra at the University of Melbourne has guided me with significant ethical advice and endless curiosity about zoos, encouraging me to write more comprehensively and argue more coherently. Lesley Gray, David Hancocks and Sally Sherwin caught many errors and eliminated much repetition. The editorial team at CSIRO, led by Briana Melideo, have been professional and supportive. They have turned an intimidating dream into a real book with little fuss and significant support.

I am most grateful to Joel Sartore for writing the Foreword and agreeing to let me use his photograph on the cover of this book. It is when we look into the eyes of animals that the ethical challenges really come forward. Up to that point they are a sort of animated backdrop, seldom given the time and thought they need. Joel travels the world taking portraits of animals; his work is inspiring and worthy of your support.

I would like to acknowledge my diverse colleagues in the service of zoos and aquariums around the world. Our debates and discussions have inspired me to apply ethical frameworks to our day-to-day operations.

And finally, the animals we work with every day; they deserve more than we can ever give them. Thank you.

Introduction – of beetles, people and zoos

> Some people talk to animals. Not many listen though. That's the problem.[1]

It's a sunny day at the end of summer. The light spilling through the window is warm, filled with tiny specks of floating dust. While I am battling to concentrate on *A Small Treatise on the Great Values*,[2] a movement catches my eye. A small black beetle is making his way across the table, seemingly with purpose and intent. I pause to consider where he thinks he is going. We are on the ninth floor, there are no plants in the apartment and nothing suited to small black beetles, yet onwards he marches.

I lean over and look more closely. He is not a special beetle by any consideration, but he is beautiful. His carapace gleams in the diluted sunlight, reflecting shades of green and blue, a tiny moving rainbow. His eyes are incredible works of engineering. His limbs are covered in tiny hairs and seem to be sampling the air around him.

As he gets closer it is time to decide the fate of this little black work of art. It is up to me what happens next. Perhaps I should kill him. It would be very easy to do and only take a few seconds. No one would hold me to moral account for this action. He has invaded my house, I am at risk that he is really a she, and pregnant, so before long I could be overrun with little black beetles that may threaten my health or lifestyle. Yet I pause. There is no benefit in his pointless death. There is no real threat to me and there are other options. It talks to what kind of person I am: would I kill a living creature simply because I can? It seems to me like an abuse of my power to kill another needlessly.

Instead I reach out my hand and place my finger in his way. The beetle stops. He waits a second then walks around my finger to the right. What just happened? Did this animal pause and consider an obstruction; did he weigh up his options and decide on a course of action? Of course not; current wisdom holds that beetles are not

sentient, they are not capable of thought and planning. But doubt lingers in my mind. Are their brains are too small for complex thought? Yet computers small enough to fit on a grain of sand are capable of incredibly powerful calculations. Perhaps the beetle is no more sophisticated than a toy or an automatic vacuum cleaner and he just follows pre-set rules – there is an obstacle, look left and right, proceed where there is no obstacle.

I try it again but this time the beetle's response is without pause; he encounters my finger and moves around it to the left. I am intrigued; it seems logical to assume that this creature has learnt. The first time when he paused he took a moment to consider the danger of a human finger – the possibility that his life was under consideration, perhaps momentary panic and fear flood his brain – but the second time he knew it was harmless.

The possibilities of endless research questions fill my brain. I am intrigued and want to know more. A new course of action presents: I can keep the beetle in a bottle and try several experiments. I doubt any will change the world but they will help me in my understanding of animals; they will add to a body of knowledge. If I get bored I can even kill the beetle with the mind of a scientist, determining how long he can last in a glass jar without food and water. But again that seems wrong.

Scientists know that they must care for animals in captivity, so I should rather keep him in a specially prepared habitat, with soft substrate where he can nest, with plants and logs so he can express his natural behaviours. If I catch a female beetle or two, a healthy colony can be started. My friends' kids will love the colony. We could watch the emergence of the fat pupae in spring and plot the life cycle together, discovering the amazing complexities of little beetles. He may even be an endangered species; many beetles are disappearing as we replace their habitat with houses and agricultural uses. My colony may become the hope for the survival of the species. Each year I could place hundreds of beetles back into the neighbourhood in the hope they will be able to keep a foothold on the planet, surviving the attack of pesticides, introduced pests and habitat destruction.

But the afternoon is warm and the beetle is resolute in his journey to the end of the table. I follow his line and realise he is heading towards

the window and his freedom. Perhaps the best response is to leave him alone and see where he goes. I open the window and warm air spills into the room. I hear birds singing and know that many dangers await the beetle outside. The beetle opens his gleaming wing covers, revealing transparent wings so fragile they defy logic; he stretches them lazily, feeling the fresh air. The wings blurring with speed as he hovers over the table, he turns and for a moment holds me in his gaze, then in a buzz of movement he is gone. My table is empty and I feel alone.

This book is about animals and our responses to animals. Every day, people encounter a range of animals and, without pausing to think through the ethical implications, they act. Every animal has the ability to evoke an emotional response – fear, loathing or admiration – and more often than not they respond to that emotion. If the little black beetle had been a cockroach perhaps you would have been calling on me to kill it immediately. What if it were a spider, frog or mouse?

I am Chief Executive Officer of three large zoos in Melbourne, Australia, where I am privileged to work with a range of animal species that most people don't even know exist. Recently I saw tiny Baw Baw froglets that had just metamorphosised from their tadpole phase. With fewer than 50 left in the wild, Zoos Victoria's breeding program is designed to supplement the population in the wild and help the species recover. The tadpoles do not eat, and when they transform into froglets they are only 5 mm long and completely camouflaged. You would not see one in the wild and only a dozen people have seen these froglets in the secure, quarantined facility at Melbourne Zoo.

Every day zoos and aquariums make decisions like those around the beetle on my desk. For some species in zoo care, the course of action is straightforward and the ethical debates are limited. No one challenges the actions of the butterfly team about the disposal of hundreds of eggs and caterpillars that are surplus to their requirements. Every day 50 animals die of old age in the butterfly house. No reporter has ever asked for these numbers or converted them into a front-page story. It seems that humans don't care too much about insects. Are butterflies in some way less valuable, less amazing or less important? It is hard to believe that they are less valuable when you stop and look at the amazing complexity of butterflies and understand just how delicate

they are, or you pause to consider the critical role that butterflies play in pollinating plants and maintaining the ecosystem.

For other species, every decision might be scrutinised by animal lovers and devoted fans. Elephants, bears, big cats and great apes can evoke emotional reactions and scrutiny. Community members and visitors are deeply interested in the care of animals in zoos. They ask about feeding the animals, how we exercise them and how we plan for the sustainability of these complex animals. Zoos need to address suspicions of exploitation by ensuring transparency and access to information.

Human responses to animals are complex and often inconsistent. We love animals, we care about individuals, yet we eat animals, kill them in their thousands and destroy their homes for our own benefit. For many animal species, numbers in the wild are now less than numbers in captivity. Without action, intervention and help, they will disappear.

It is challenging to think about animals and our responses when we use a term such as 'animal' to cover hundreds of thousands of species with greatly varying capacities and evolutionary roles. In this book I have used the term 'animal' to include all living creatures excluding humans. Where it is necessary to speak of distinct groups of animals, such as mammals or birds, I make that distinction. In this application, animals include fish, invertebrates and all the other usual suspects – mammals, birds, reptiles and amphibians.

Like animals, zoos come in many shapes and sizes. The most basic definition is that zoos hold animals in captivity and charge people money to see them. The motivations, skills and operations vary enormously. This book strives to shine light on the ethical challenges and responses for zoos, asking if even the best zoos are ethical.

The story of zoos is a story of redemption. From their beginnings, based in colonial times and linked to displays of power and domination, modern zoos are emerging as unlikely heroes for conservation. The dire circumstances of many species on our planet require all kinds of heroes. The ethical challenges of working with animals are significant, and

only time will tell if zoos can continue evolving and thus remain ethical and worthy, or if they should be closed forever, a quaint reminder of a time when we treated magnificent creatures as resources.

Tomorrow I will visit Mali, our seven-year-old elephant calf. She is certainly sentient; if hurt she screams, evoking protective responses from her mother. She also expresses joy with trumpeting and trunk waving. She understands language and has learned over 40 behaviours. She can express herself with body language and with a range of tweets, roars and squeaks. I was present at Mali's birth. I lived through the concern and preparation for a complex and fraught time and I cried with joy to see her first wobbly steps. Zoos Victoria has the responsibility to make sure that Mali is well cared for, for the next 70 years.

My responses to animals are personal, professional and academic. Few people are as well placed as zoo people to debate animal ethics, but few zoo people choose to enter this arena. Ethics in zoos are complex, compounded by the fact that there is no simple response to thousands of complex, intriguing and valuable species, represented by millions of individual animals each with a unique life story, each with unique needs and interests.

In recent years the debate around animals in zoos has attracted increased interest and scrutiny. 'Wicked problems' (p. 211) are situations where the 'right' answer is not easy to find; often there is no single right answer. Zoos face many of these wicked problems that ask us to exercise our brains, to formulate an ethical stance and to think deeply about what makes for the best decision. Without clear ethical principles to guide their actions, zoos and aquariums run the risk of taking actions that can and will be challenged, increasingly undermining the very core of their operations. Each bad choice is amplified through the media and social debate, eroding confidence that zoos and aquariums may be morally defensible.

By applying clear and accepted ethical principles to the operations of zoos and aquariums I hope that I can give people involved in zoos the tools to evaluate their actions in the light of those principles and inspire them to take actions that are morally defensible.

Endnotes

1. Milne AA, *Winnie-the-Pooh*. <http://www.goodreads.com/work/quotes/1225592-winnie-the-pooh>.
2. Comte-Sponville A (1996) *A Small Treatise on the Great Virtues*. Henry Holt and Company, New York.

Terminology

In this book the following terms are used with the meanings below.

Zoo is a facility that holds and displays animals for viewing by the public, including zoos, aquariums, sanctuaries, wildlife parks, open-range zoos, butterfly gardens and reptile parks.

Modern zoo is a zoo that has embraced the core philosophy of contributing to conservation outcomes, improving animal welfare and facilitating education and research.

Well-run zoo refers to the professionalism of staff and process.

Bad zoo is a zoo that acts unprofessionally, in ways that neither demonstrate care of the animals nor provide any substantial social good in the form of education, research or conservation outcomes.

Animal includes living creatures from invertebrates to mammals, but excludes humans.

Zoo animals are animals held in zoos and include a vast range of species, both domesticated and wild.

Complex animal denotes the species that have, thus far, been seen to be the most sophisticated: great apes, elephants and dolphins.

Ethics is generally held to be concerned with how we should live, while ***morality*** is concerned with how we should treat others. The terms are used interchangeably in this book.

Loc (short for location) has replaced page numbers in electronic books to allow for differences in formats and font sizes.

Staff include all the people who work within zoos and aquariums; this includes keepers, ground staff, visitor services, administration, management and owners.

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1

Introduction to applied ethics and zoos

> In 'Are Zoos Morally Defensible?' Tom Regan concludes 'not that zoos as we know them are morally indefensible but rather by admitting that we have yet to see an adequate ethical theory that illuminates why they are not'.[1]

Do you remember your first visit to the zoo? You probably visited the zoo with your parents or your school. At the gates you may have danced from foot to foot, excited at the thought of seeing real, live, wild animals so close to home. You rushed through the gates with a map in your hands that promised exotic experiences and amazing animals. At some point you would have come face-to-face with a magnificent creature, a tiger, lion or gorilla, and stared, mesmerised. Looking into their eyes you find yourself connecting with an intelligent being and wondering what they think or feel.

Then you grew up and stopped visiting the zoo, your infatuation with animals replaced by other humans, cars and mortgages. Until, with children of your own, paging through children's books, you reconnect with the animals that grace the pages, from aardvark to zebra. As your own children begin to recognise and love animals, you remember the zoo and you return to a place loved from your childhood, eager to introduce your children to magnificent animals in a beautiful setting.

At the zoo you find that much has changed. The old cages are gone, replaced with new habitats. Fewer animals occupy larger spaces. Conservation messages have replaced zoological trivia. Campaigns urge you to change your behaviours and request your support. The anthropocentric shows and performances have also gone, replaced with

keeper talks and displays of natural behaviours. But many things remain the same: the school groups still pour through the gates, parents share stories and ice-cream with their children, and tigers pace.

As an adult visiting a zoo, at some time you will have looked into the eyes of an animal and wondered if it is right that we contain wild animals. You see the joy that your children get from the experience and understand the conservation work that zoos undertake, yet you know you would not like to be treated the way that we treat animals. You imagine a lion would be happier in the wilds of Africa behaving in the ways that lions have evolved to behave, instead of sleeping in front of thousands of screaming children.

Zoos reflect the often contradictory relationships that people have with animals, rejecting blatant welfare atrocities, defending our right to use animals for our own ends, and yet feeling that something may be amiss in the ways that we treat and use animals.

Public zoological gardens emerged over the last 225 years, some as exhibits of imperial power, some from a private passion for animals, some as a public good and some as commercial undertakings. At their most basic all zoos contain animals in a relationship of vulnerability and dependence, and provide people access to see the animals for their enjoyment or education. Today, zoos are enormously popular. It is estimated that over 700 million people visit zoos each year.[2] Good, modern zoos are vastly different from zoos of 100 years ago. As cultural institutions, zoos have observed changes in knowledge and sentiments and have adapted and changed. Zoos have advanced our knowledge of animals and their needs, they have improved facilities, and they have applied rigour to improving animal welfare. With their passion for animals, zoos have been on the forefront of conservation efforts aimed at protecting and saving the rare animals of the world.

Book outline

Moral philosophers formulate theories of the good, the virtuous and the right, set out in general terms.[3] It falls to applied ethics to bridge the gap from the general terms to practical, everyday challenges. In addition to the recognition and application of general moral principles, arguments

in applied ethics need to be supplemented by empirical data and organisational experience. This book is an exercise in applied ethics, examining a common everyday experience, a visit to the local zoo, and the daily operational tasks of maintaining a collection of animals in ways that permit people to see and interact with them, testing these actions against a variety of ethical frameworks and general ethical principles. The core of this exploration is to consider the good, modern zoo, and ask, 'Are even the best zoos ethically and morally defensible?' No single ethical theory does all the work to either condemn or defend zoos; rather each theory highlights different important considerations.

The book is organised in a way that allows for an exploration of the major ethical theories – animal welfare, animal rights, consequentialism, virtue ethics, and environmental ethics. Following a description of a theory I apply it to zoo operations, exposing the support, concerns and challenges embedded within each one. It would be overly ambitious to cover all ethical frameworks in detail in a book focused on applying ethics to zoos. However, I have tried to introduce the key elements of the main ethical theories that have pedigree with respect to animals. I would encourage scholars in ethics to read more widely and form their own views on the usefulness and applicability of various ethical frameworks.

The journey has highlighted the challenges of applying ethical theory to real situations and the limitations of each approach, reinforced in the discussion of real situations in the separate section 'Wicked problems' on p. 211. Along the way I have developed a sense of the ethical zoo, a zoo that may adequately meet the rigours of most ethical theories. While purely an intellectual construct, the concept of an ethical zoo provides a guiding light for zoo practitioners struggling to decide on the best course of action. In answering the core question I conclude that the best zoos may be ethically defensible. But I run ahead of my discussion.

The logical place to start is by looking at zoos, in particular modern zoos and their core operations (Chapter 2). The term *zoo* is used to include many versions of facilities that hold and display animals to a viewing public, including zoos, sanctuaries and aquariums. While people love and visit zoos they seldom have time or access to understand

the complexities that are involved in zoo operations. Old practices are stuck in our memories and influence perceptions, so it is important to set the scene of current practices.

After examining the phenomenon of the zoo, I consider the moral disquiet with zoos (Chapter 3) and the importance of such disquiet. Mostly it is the conditions for the animals that give grounds for concern. While the use of animals in zoos is neither as significant nor as impactful as other uses of animals, at its core zoos use animals in ways that have the potential to cause pain or suffering and as such there are grounds for moral disquiet. Even if pain and suffering are not present, zoo animals are still used, and in itself that raises moral concerns.

The most widely accepted and agreed moral principle with respect to the treatment of animals is that sentient animals have an interest in their own welfare, and a discussion on animal welfare provides a good starting point to consider the obligations of those who hold and work with animals. Animal welfare (Chapter 4), at its most simple, demands that animals should not experience unnecessary pain and suffering. For well-run zoos and aquariums, pain and suffering should not be an integral part of operations. In fact, zoos sell a promise of access to healthy, happy animals. While it is challenging and complex to meet that promise, it is arguably possible to eliminate unnecessary pain and suffering from zoo operations without destroying the core value proposition of zoos, which is to see animals up close in a human-constructed environment.

The interests of animals are, however, far broader than animal welfare. Animal rights theory (Chapter 5) considers other morally important interests that animals may possess, and holds that animals are the kinds of beings that should be treated with respect for their autonomy and should be afforded the basic rights to life, liberty, and freedom from pain and suffering. Zoos hold, own and use animals, constraining their freedom and deciding all important aspects of an individual animal's life: their partners, their actions, and even when to terminate their lives. The moral consideration of animals requires that zoos should act in ways that are consistent with the best interest of each individual animal, acting not as an owner but rather as a guardian for the individual. While easy to articulate, this approach requires an

understanding of the interests of each individual. However, most animals at zoos are currently treated as if there is a consistent species-level view of interests (elephants like swimming, for example) rather than at an individual level. A standard view of any system of rights requires the ability to handle conflicting rights, and animal rights are no different. Within zoos there are conflicts between animal and human rights, the rights of different individuals in a group and the rights of an individual conflicting with the survival of a species. Where rights conflict, we can draw on general rights principles to discover the best course of action.

Consequentialism (Chapter 6) considers the moral value of an action based on the consequences or outcomes against an agreed value system. It is proposed that zoos and aquariums provide experiences for both humans and animals and that these experiences may be positive, neutral or negative. Considering experiences as the value system, or consequences, of zoo operations, I am able to apply consequentialism to assess zoo operations. An analysis of the positive and negative experiences generated at Melbourne Zoo is used to show the impact of a large, modern zoo. Even including the negative experiences of animals, Melbourne Zoo shows a net positive experience. Yet there are challenges for consequentialism, particularly when the party that enjoys the benefits is not the party that bears the cost, and the party that carries the cost is unable to consent, as is the case in zoos.

A question remains. Even if the positive experiences exceed the negative experiences, what do zoos say about the virtue of humans in societies that support zoos and aquariums? Virtue ethics (Chapter 7) is getting a revival in terms of its ability to shed new light on complex ethical situations. While not delivering a strong case for or against zoos and aquariums, the virtue ethics discussion adds to the ethical assessment of zoos and the people who work in zoos and visit zoos.

Environmental ethics (Chapter 8) provides additional support for the role and importance of zoos in the 21st century. Environmental ethics touches on both ethics and morality in new and novel ways. Environmental ethics asks us to consider if a life well lived allows for the destruction of environments and the extinction of species, arguing

there is loss of value in our lives if we live in a world devoid of diverse creatures. Environmental ethics also asks that we consider not only the treatment of other humans, but also that of other sentient and even non-sentient beings. Zoos have unique skills that can be harnessed to deliver species support and, in the worst cases, insurance populations. While zoos strive to save endangered species, ironically it is the endangered species that may well provide the ethical support for zoos of the future.

Ethical theory and discussions are interesting, but it is in the application of theory to real situations that we are most challenged. It is easy to talk about concepts such as euthanasia or killing in self-defence until we are faced with a real, breathing being. Thus I have included a section of 'wicked problems' at the end of the book, real situations that may be familiar, to test your ethical thinking. These problems represent the real-world issues faced by people who work in and with zoos and aquariums. I don't give simple answers; I hope that through reading this book you will feel empowered to have an informed view on the problems and avoid a purely emotional response. I hope you will be able to develop your own defendable, ethical position.

Zoos bring people and animals into contact. They allow us to look into the eyes of tigers and gorillas, and confront us with some of the moral and ethical questions of our age, such as what makes for a good life, and how we should we treat animals and their environments.

Zoos face increasing challenges and must continue to evolve, taking into consideration changing attitudes to animals and our increased understanding of the capacities of animals. To remain relevant and ethically defensible there must be a commitment to respect the interest of each animal held by a zoo, including interest in positive welfare, life and choice. Zoos must become real guardians for the animals in their care and avoid thinking and acting as owners of living property.

For some species this may not be possible. It is plausible that zoos and aquariums are unable to meet the needs of individual, complex animals. Humans are learning so much about the cognitive and mental aspects of animals that we will no doubt see the sphere of concern for life and liberty expand, and with it a contraction of the permissible use

of certain animals, governed or overseen by rigorous evaluations or accreditation of standards. In these cases zoos and aquariums will be forced to reconsider the acceptability of holding large, complex animals, and in the wider world we would hope to see a commensurate level of protection offered to wild populations.

However, for the majority of species, zoos are able, with time, effort and attention, to create environments that support positive animal welfare states, including choice and variation. Once they have met the needs and preferences of individual animals, zoos are able to deliver benefits to threatened species through breeding programs and their conservation work.

Finally, while we think of animals when we think of zoos, it is people who benefit most from zoos. Zoos are adept at delivering benefits to people, from entertainment to deep life-long emotional connections. Ethical zoos must focus on maximising the benefits they deliver to people, the people who work in zoos, the people who visit zoos and the larger community that the zoo serves. Zoos provide an opportunity for urban people to know amazing animals, to learn, to wonder, and to share their love with their children.

The next time you enter the gates of a zoo, perhaps you will pause and consider that you are taking an action that is charged with moral and ethical content. I hope that as you view some of the animals that share our planet, you may reconsider the complex relationships we have with animals and how we need to change our attitudes and behaviours in order to ensure that we continue to share the planet with a diverse and awe-inspiring animal kingdom.

Endnotes

1. Regan T (1995) Are Zoos Morally Defensible? In *Ethics on the Ark* (Eds BG Norton, M Hutchins, EF Stevens, TL Maple). Smithsonian Institution Press, Washington, DC, p. 38.
2. Gusset M, Dick G (2011) The global reach of zoos and aquariums in visitor numbers and conservation expenditures. *Zoo Biology* 30, 566–569.
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2

The modern zoo

> I have to remind myself that some birds are not meant to be caged. Their feathers are just too bright. And when they fly away the part of you that knows it was a sin to lock them up does rejoice. But still that place you live in is that much more drab and empty that they are gone.[1]

Introduction

A life without animals may be a deprived life. Humans are animals, and we need to experience and interact with other animals to understand ourselves, others and our place in nature. We relate to animals in complex ways. Intuitively we want to be near animals, investing money, affection and emotion into some animals. Yet we also farm animals, hunt animals and kill them when they compete with us for food or habitat.

Animals intrigue and amaze us. We desire to know animals. We love them so much that we want them close by, in our homes, in our cities, in parks and in wild places. It is not enough to know they are there; we want to see them and to marvel. Yet keeping them close removes the part that we love, their wildness and independence, and impacts on the lives and experiences of individual animals.

Some of our desire for interaction with animals is met by companion animals; animals that have been bred to thrive in human company and have become accustomed to living with humans. But we also yearn to know big and exotic animals of wild species, animals that have not been domesticated.

Documentaries have gone a long way to share knowledge and educate people about animals and their ways, yet we still desire to encounter real animals. Adventure travel takes people to remote

locations to see animals in their natural habitat. Nature lovers descend on the countryside where wild animals live, discovering the indigenous species of that area. Twitchers travel the world hoping to add elusive bird species to their lists. Yet the act of seeing animals in their own habitat is one that alters both the habitat and the behaviour of the animals. Ecotourism on the scale that would be required for every human to have access to see animals in the wild would have a significant impact and possibly even bring about the total destruction of the wild.

For most people, zoos are the places where they will be able to see and interact with large or exotic animals. The young, the elderly and the mobility-challenged cannot go to the places where animals live; instead they travel to urban zoos to see animals for themselves, to smell them, to observe them and to interact with them.

Located in urban centres, zoos enable over 700 million people per year[2] to see and experience animals, including animals that sensible people would not keep in their homes: big animals, dangerous animals, and animals that need more space and skills than the regular home can provide. Zoos also house domestic animals, sheep, goats and chickens, as well as small animals, frogs, insects and fish. Animals housed in zoos fulfil the desire of millions of people to know a rich mix of animals and to share this knowledge and experience with their children.

Well-run zoos facilitate closeness to animals of wild species in an affordable, safe and respectful way. They allow urban dwellers access to a pocket of wilderness within the urban setting, offering a safe and fun learning environment for children and families, where values are shared and unique educational opportunities are experienced.

Definition of zoos

'Nothing is well defined unless exactly described; and to describe exactly, one must have seen, examined and re-examined.'[3] It is challenging to do justice or to explain in sufficient detail the complexities and variations of all the facilities termed zoos and aquariums that hold animals for display and trade. At best I will be able to give broad definitions and perhaps shed light on the emergence of the modern zoo: conscious of the welfare of the animals in its care,

dedicated to the conservation of animals in the wild, and committed to developing good citizens through the education and empowerment of its visitors.

Zoos come in a vast array of shapes and sizes. Biologist and science writer Colin Tudge[4] defines a zoo as 'a place where animals live in a protected state and are made accessible to human observations'. He goes on to explain that this definition includes the full range of facilities from intensive breeding centres to traditional city zoos to sanctuaries. A key aspect of zoos is that the animals are contained in such a way that they are dependent on humans to provide their needs.

Throughout this book I use the term 'zoo' to include all forms of facilities holding a collection of live animals for public viewing, namely zoos, sanctuaries and aquariums, unless I am discussing a specific type of facility. 'Zoo' is short for 'zoological gardens', a tribute to the early tradition of placing animals within established gardens.

Generally, the size of enclosures and the mix of species differentiate the type of zoo. Many facilities such as butterfly gardens or reptile parks may focus on a single class of animals. Many zoos are located in or near urban centres and as such are often limited in size. The historical root of zoos and people's ongoing desire to see exotic animals means that zoos tend to display foreign animals. Over time, collections have been expanded to include smaller animals and native species. Sanctuaries tend to focus on indigenous animals displayed in natural settings. Many of their animals are rescued and most sanctuaries focus on returning animals to the wild. Open-range zoos are typically larger and allow animals to be held in large mixed groups, often moving the visitors through the animal space. Aquariums hold animals that live in water, both marine and river, varying from small fish to large marine mammals.

The history of zoos

The earliest significant accounts of keeping wild animals come from Egypt and China as far back as the 4th and 5th millennia BC.[5] Accounts of keeping wild animals in antiquity show our fascination with animals and the multiple ways that humans have used animals to advance their own status, through display, sacrifice, warfare, games

and hunting, or even as culinary delicacies. The wealthiest citizens kept wild animals for decoration to indicate their wealth and power. Wild animals were commonly exchanged as gifts, leading to the spread of wild animals around the world. While numbers were small, the trade of animals was of great diplomatic value and helped maintain relations between sovereigns.

In the first half of the 16th century, the age of discovery heralded the creation of European colonies in Asia, Africa and the Americas, and the exploration of global biodiversity. Travel diaries show that European explorers liked to take home animals, particularly birds and monkeys. In Europe, birds were popular with ladies and were held in cages, while 'ferocious' big cats and bears were held in pits near residences and exotic hoof stock roamed in parks and estates. Wild animals were tamed as pets and even big cats were kept inside on occasion.

The expansion of exotic animal collections in Europe can be traced to the influx of exotic animals resulting from the development of new trading routes in the 15th and 16th centuries.[6] Trading routes opened access to foreign destinations and facilitated access to exotic animals. Leaders exchanged animals as a sign of power and influence, resulting in the need for facilities to display the animals received as gifts. The first zoos in Europe were private holding facilities, but over time the costs of maintaining the collection of animals and public interest resulted in a new model.

The public curiosity about exotic, fierce creatures was initially met in several ways. Unusual animals were paraded across Europe as a spectacle and attracted significant attention. Circuses and games showed off the strength, ferocity or rarity of animals to fascinated audiences. Towns created small menageries to house exotic or culturally significant animals, from the lions at the Tower of London to bears in the Swiss city of Bern.

Zoological gardens emerged in the 19th century as public facilities managed by professional staff, replacing private animal collections and menageries. Permanently sited zoos developed in several waves, driven by enthusiasm for democracy and the sharing of opportunity with all people. This aspiration for education and access to exotic

animals lay behind the emergence of a great number of facilities established across Europe.

The Jardin des Plantes, in France, was the first example of a new type of facility intended to serve the entire nation, rather than a select few.[7] Opposition to princely menageries surfaced in France during the Enlightenment. Following the French Revolution, menageries held by royalty and aristocracy suffered from lack of funds and the removal of animals. The idea of creating an animal menagerie joined to the Jardin des Plantes in Paris was raised in 1790. The first step was taken in 1793 when the Paris police ordered that all animals exhibited on public highways should be transported to the Jardin des Plantes.[8] Initially lack of funds and poor facilities hampered operations, but the management persevered. Requisition from princely menageries added animals, with the survivors of Versailles arriving in 1794. Forty years of construction followed, creating new landscapes with animals on display, immersed in the seemingly natural environment. Over the next 150 years, this model was followed in many other places, leading to the creation of gardens with animals for scientific study and the enjoyment of all people.

Through 1850–1900 most major European cities developed and opened zoos. The London Zoological Gardens was established in Regent's Park in 1828, followed by Dublin (1831) and Bristol (1835).[9] Zoos sprung up in Netherlands, Belgium, and smaller French towns between the 1830s and 1860s. A significant wave of zoo development followed the proliferation of industrial and trading towns along the Rhine when the Germanic states formed themselves into a federation. The rapid spread of zoos was driven by the nature of competition between nations. Zoos were seen as an important tool in confirming or maintaining the status of a city, much like museums, theatres and art galleries. The power and status of holding exotic animals had transferred from princes and sovereigns to the city and its citizens.

In the United States zoos began to appear after the civil war, with the first zoo opening in Philadelphia in 1868. Other big cities followed. Serious growth of zoos started in 1885 with another 20 zoos opening from 1885 to 1900. Thereafter zoos continued to open at a rate of about two new zoos a year until 1940.

Zoos were developed around the world, reflecting the tastes of the colonial powers and local standards. Some zoos thrived when the colonial powers left, but many without sufficient resources or skills struggled to meet the costs of caring appropriately for their animals.

Much has been written on the history of zoos, the running of zoos and the science of looking after animals. Cultural attitudes to animals change rapidly. A hundred years ago the public delighted in seeing animals in cages. Visitors prodded animals to see a reaction, animal fights showed the strength of the beasts and animal shows entertained visitors. As humans we were entranced by the sheer power and otherness of the animals. Malamud[10] and Hancocks[11] talk of the colonial roots of zoos. The wealth and power of the colonising country was demonstrated through the display of new and seemingly incredible animals found in distant places.

The history of the development of zoos shows how our relationships with animals have changed over time. Fear was replaced with curiosity and a desire to own and control animals. Our relationships with animals mirror changes in society. As Mahatma Gandhi said, 'The greatness of a nation and its moral progress can be judged by the way its animals are treated.'[12] When human society was hierarchical, the collection of animals was the exclusive practice of the rich and powerful. Later, with enlightenment, came the desire to know more of animals. Collections became important for scientific study, allowing early representations of fanciful beasts to be updated and replaced through detailed studies of both live and dead animals.

Today, zoos are an indicator of the nature of a society and its people. They reflect values and attitudes, much like other cultural institutions. It is not unusual to find terrible zoos in places with poor human rights, and well-run zoos in places where basic human needs are secured. In many ways, zoos reflect the social issues of their time. During wars, zoos experience great hardship, shortages of food become pronounced and many animals die horrible deaths. Through the Great Depression in the USA, zoos became the focus of many of the public works projects included in the New Deal. Animals and animal welfare improved with investment primarily aimed to facilitate employment.[13] With the pressures

of climate change and increased public interest in the environment, modern zoos have increased their conservation focus. Aquariums, with their smaller footprint, all-weather access and appeal for adult visitors, are emerging as a popular addition to cities' leisure attractions.

Zoos have also changed with an increased understanding and knowledge of animals. Gradually, humans have accepted that animals can feel pain and suffer, and with that understanding our perception of the acceptable treatment of animals has changed. Many zoo enclosures that were acceptable 50 years ago have become obsolete and unacceptable. The sensationalised theatre of early zoos has been replaced with talks and educational presentations.

While early zoos focused on entertainment, modern zoos are evolving into scientific bodies, places of education and conservation centres. Artists, writers and zoologists have found zoos rich sources of inspiration and material to study, be it animals, people or the complex interaction between people and animals.[14]

The ongoing popularity of zoos means that at any given time numerous zoos and aquariums are being planned and developed. Over the last 50 years, zoos have increased their value to society by engaging in conservation activities, scientific studies and public education. Membership of regional or global bodies that specify standards and codes of conduct serves to improve the quality of the zoo.

Zoos are complex operations. This arises from the combination of tasks and businesses that are intertwined in zoo operations. Animals have specific needs and requirements, visitors have different and sometimes conflicting needs and desires, while the demands of education, science and conservation are significant. Any one of these undertakings is challenging, but zoos bring all four different operations – animals, visitors, education and conservation – together, while still trying to maintain assets and run a sustainable business.

Ownership models

Ownership of zoos varies from government owned, through ownership by a society or trust to purely private ownership. Non-government ownership sees zoos experience different management models. Some

zoos are operated as a department in a larger directorate, while others are operated as state-owned entities overseen by independent boards. All levels of government – local, state and federal – may be involved with the operations of zoos. The responsible government department might be environment, economic development and tourism or even the construction department (in China). The reporting department is important in that it often sets the strategic tone and direction, reflecting the importance, or lack thereof, afforded to zoos.

A few corporate entities own several large zoo, aquarium and entertainment facilities that are extremely profitable. However, many privately owned facilities are small and operate on tight margins. Aquariums are often private ventures, with a few chains owning numerous large aquariums.

The majority of zoos are managed as 'not for profit' entities, with the return from operations retained to finance capital development or used to fund the conservation activities of the organisation. The prevailing sentiment, that zoos are providing public good, results in a desire to allow access for all citizens and hence low pricing. A good example is St Louis Zoo, which is fully funded by the state land tax and is thus a free-entry zoo. When not-for-profit zoos have low entry fees it erodes the ability of the private sector to create a strong commercial model and has acted to limit the number of private zoo operations. Private zoo operations thrive where there are no public facilities or where there is a particularly strong tourism sector.

Despite the challenges to financial viability, small family-owned and operated zoos and roadside animal attractions are common around the world. Small zoos are often started by a passionate animal lover with an expanding and costly private collection. Some, such as Gerald Durrell's Jersey Zoo, now called Durrell Wildlife Park, or Steve Irwin's Australia Zoo, grow to become large influential zoos. However, many remain small, struggling to cover costs and meet industry best practices.

Revenue streams for zoos vary, but most zoos charge an entry fee and provide compatible commercial operations, such as catering and retail outlets, to supplement revenue. In many cases this is insufficient to cover all costs and thus grants from government or donations from patrons are required to subsidise and support operations.

Capital requirements of zoos are high. Many zoos secure the capital required for new enclosures and developments from government grants or philanthropy. Zoos often rely on 'blockbuster' exhibits that will attract visitors for several years and act as the primary motivation to visit. Increased visitation is required to ensure that returns are generated to cover the costs, leading to extensive marketing and the perception of commercial focus. Failure to secure sufficient funds for capital upgrades may start a very negative cycle of diminishing visitation, poor facilities and compromised animal welfare.

Ownership is not a good indicator of quality of operations. Management attitude and access to resources and financing are generally the best indicators of an organisation's ability to provide adequate care for the animals and engage with education and conservation programs.

Quality of zoo operations

A wide range of zoos can be found around the world. The quality of the facilities, animal care and visitor interaction and service vary greatly. Sally Walker[15] identifies that there are as many as 10 000 zoos in existence, with only 1000 within the scope of the World Association of Zoos and Aquariums (WAZA) and its regional affiliates. Thus only 10% of zoos operate according to any code of ethics and standards. Few governments seem willing or able to control the poor facilities.

A notable exception is the Central Zoo Authority in India, which created national standards for zoos and assessed all facilities against the standard. The Indian National Zoo Policy identifies that 'The amendment of the Wildlife (Protection) Act, in 1991, provided for the enforcement of mandatory standards and norms for management of zoos through the Central Zoo Authority.'[16] Since 1991 over half the zoos in India were deemed to be unable to improve sufficiently to meet the minimum standard, and subsequently closed.

In judging the quality of zoo operations it is easy to single out the thing that most people consider when discussing the quality of a zoo, namely the treatment of the animals in the facility. A rough or crude facility where the animals are well treated will receive less criticism than a sophisticated operation where animals are not well cared for.

Factors that lead to a visitor's perception of poor animal care include inadequate space to move around, failure to maintain cleanliness of the animal's quarters, boredom, pacing and distressed behaviours, wounds and injuries, a barren or harsh enclosure, and solitary animals. The attitudes and behaviours of fellow visitors can also contribute to a judgement of a zoo. If the harassment or poking of animals is tolerated we tend to judge the facility badly. Finally, the visitor judges the zoo facilities on their cleanliness and ability to meet the visitor's needs.

Legislative requirements generally set minimum standards; however, many legislative standards are not science-based and have developed from tradition or continuous improvement. In many cases the minimum standard is insufficient to meet positive animal welfare requirements. Most standards set out the minimum sizes of enclosures and containment methods but few zoo regulations consider operational aspects or the sophisticated needs of animals. Visitor requirements are well regulated and in litigious societies receive ongoing attention.

Regional zoo associations promote a system of self-regulation through accreditation systems. In 2016 in the United States 231 zoos were accredited with the American Zoo Association. The accreditation covers all aspects of zoo operations and is a good indicator of a well-run zoo. The World Association of Zoos and Aquariums promotes a Code of Ethics which members must adhere to.

Within a single zoo varying standards and facilities may be present. Zoos are hampered by old facilities and outdated infrastructure. Despite best attempts to modernise and upgrade facilities, there is always a long list of areas that require improvement. Scarce resources result in choices and priorities being made. Often conflicting demands require tough decisions between visitor facilities and attractions to generate funding and animal welfare investments.

Zoo animals

Zoos hold thousands of animals, with unique needs and requirements, in ways that aim to enable them to thrive in an unnatural and potentially stressful setting, surrounded by sometimes inconsiderate or demanding visitors. Zoos employ a wide range of professional staff to

care for the welfare and health of the animals, with skills that include veterinary, nutrition, animal psychology, behavioural, enrichment, husbandry, training and conditioning. Early efforts to keep animals were often clumsy and based on insufficient knowledge, resulting in poor welfare outcomes. However, a significant body of research into animals and their needs has been facilitated in zoos through close scrutiny of animals, supported by the proximity to universities, resulting in 200 years of knowledge of animal diets, behaviour and breeding. Simple physical success in keeping animals alive has been replaced with greater understanding of the needs and preferences of different species and the desire to meet these needs.

Ownership of animals

The majority of zoo animals are owned by the facility. Animals that are not owned by a facility will include critically endangered species, which tend to be owned by the government of the range state, that is, the country or region in which the species occurs naturally. In such cases, facilities are considered as stewards of the animals in their care and are obliged to obey the instructions of the species managers. In many countries, zoo animals are not traded for financial gain and animals move between facilities without payment. Zoos work collaboratively to provide the optimal pairing and housing to ensure the long-term sustainability of the population. Loans between zoos enable breeding, with contractual agreements between the two facilities with respect to offspring and care of the animals.

Sourcing animals

In the early days of zoo development, most animals were sourced from the wild. Zoo directors and private animal traders travelled to exotic locations, documenting and collecting new species. Many animals died in transport due to lack of knowledge, inappropriate conditions or slow transportation. Even once landed and housed in the zoo, animals succumbed to inappropriate conditions and inexperienced keepers. While rapid advances were made in holding animals and keeping them alive, it became apparent that zoos could not keep drawing on a dwindling

number of wild animals, and thus collaborative breeding programs were established.[17] In addition, the risks of spreading disease and introducing pests have resulted in strict protocols for moving animals.

In 1960 the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) was established.[18] CITES is an international agreement between governments and was established to ensure that international trade in specimens of wild animals and plants does not threaten their survival. Roughly 5600 species of animals and 30 000 species of plants are protected by CITES against over-exploitation through international trade of live animals and plants or any wildlife products derived from them. In 1976, World Wildlife Fund and the World Conservation Union established TRAFFIC as an international organisation to monitor the trade in wild plants and animals to ensure that trade is not a threat to conservation.[19]

Today the majority of animals within zoo collections are captive-bred. Over time, zoos have focused on animals that are suited to captivity and collaborative breeding programs, thus creating largely sustainable populations. The creation of a range of facilities like open-range zoos and wildlife parks has increased access to captive-bred animals. Private breeders and the pet trade also supply animals to zoos, particularly birds and reptiles.

Associations of zoos developed from the need to secure sustainable populations through collaborative breeding programs and the sharing of collections. The selection and breeding of animals is supported by studbooks, which record the lineage of every individual, and a sophisticated zoo information management system (ZIMS) which in 2017 held records for over 6.8 million individual zoo animals (current and historical) across 21 000 species.

The desire to be independent of wild collection has resulted in the need to constantly watch genetic diversity and retain genetic fitness, a skill that has proved most valuable in recovering critically endangered species. Zoo professionals expert in a particular taxonomic group of species work collaboratively in taxonomic advisory groups. These manage the health of each species in captivity and recommend which individuals to breed or move to meet the need for display while

retaining the best possible genetics to allow for possible future release back into the wild.

Despite the focus and attention placed on a sustainable global collection, there are times when animals must be obtained from the wild. The largest group of animals brought to zoos from the wild are rescue animals, where their injuries preclude their return to the wild. The choice becomes death, or life in the zoo. Many of these animals are movement-impaired, such as birds with broken wings.

Customs and border security officials provide vigilance on illegal trade in live animals, which may result in the confiscations of illegal trade animals. Zoos are called on to take in confiscated animals, particularly when the confiscation is not in the home range of the species. If zoos are unable to house these animals, they are killed. The illegal trade in endangered species is particularly odious, and without zoos thousands of endangered animals would be killed on confiscation.

When species are threatened, and captive breeding is recommended as part of the recovery plan, it is common to secure founders of the captive population from the wild. In extreme cases, all remaining individuals may be brought into the relative safety of human care to establish breeding and release programs. More commonly, small insurance populations are founded, to increase knowledge and to hold a population in the event of catastrophic failure in the wild. In recovery programs, it is desirable to supplement breeding populations with new genetics from the wild at regular intervals.

On occasion, zoos will secure animals from the wild that are plentiful yet may be unable to breed in captivity. CITES is designed to ensure that such wild acquisition would not harm the wild population. Over time, advances in knowledge and science have improved breeding outcomes to a point where few animals are sourced from the wild.

One notable and controversial exception is the sourcing of fish and marine mammals, such as whales and dolphins, for aquariums. In particular, the live capture of dolphins during drive fishing (p. 204) is attracting significant negative attention and is rejected by the World Association of Zoos and Aquariums as an inappropriate method of acquiring animals.

Surplus animals

Zoos have finite spaces to hold animals, and thus births and acquisitions need to be carefully managed to limit numbers of unwanted, surplus animals. Responsible zoos accept a duty of care for the entire life of their animal and will assess any receiving facility to make sure that it has the skills and resources to care for an animal.

Techniques to slow or stop breeding are routinely practised in zoos that have space limitations and no room for the offspring. The most popular techniques are separation of males and females and the use of contraception. It is unusual and undesirable for zoo animals to be bred if the offspring cannot be accommodated. It was once a common practice to hold young animals as an attraction and terminate them at puberty, but this is seldom done today. Careful planning and management of breeding has reduced the numbers of unwanted surplus animals. Killing surplus animals that arise due to breeding programs, imbalances in sex ratios, hybrid or inbred animals, is contested, as the animals may be healthy and able to enjoy a good quality of life (see 'Wicked problems' on p. 214).

On occasion, the benefits of breeding are promoted to enrich the lives of adults. In some species, severe health problems can arise if breeding is prevented. For example, in elephants a failure to breed may result in ovarian cysts that can be life-threatening. In such cases it is desirable to facilitate breeding, but this should be matched with appropriate life plans and suitable space.

Well-run zoos understand that they have a duty of care to their animals, a duty that extends to not killing them for trivial reasons such as saving money or rectifying mistakes by keepers. There are circumstances where administrators, keepers and vets need to take the decision to terminate the life of an animal in their care. In a good modern zoo, terminations are allowable in a narrow range of cases and must be assessed against a set of defensible criteria. The termination of the life of an animal that is suffering or has a reduced quality of life due to sickness, disease or old age, is relatively uncontroversial (see 'Wicked problems' on p. 221).

It can be argued that life and death in a zoo is less brutal or painful than the wild equivalent. Access to veterinary care, stable food sources

and no predation results in less disease, trauma or stress for animals held in captivity. As a result, animals of many species live far longer and die less painfully in captivity than in the wild. This improved longevity and health of zoo animals is a change from early zoo operations, where ignorance and lack of technology resulted in the premature death of many zoo animals. Despite improvements, there are still species that have poor records of success in zoos.[20]

While life and death may be less traumatic for zoo animals than for their wild conspecifics, the death of any charismatic zoo animal is of concern to the zoo and their public. Transparency as to the cause of death and steps taken to prolong the lives of zoo animals is important in addressing such concerns. Life and death decisions must be approached with respect and compassion, ensuring that the decision is in the best interest of the animal.

Werribee Open Range Zoo displays large herds of large animals. Many herd animals have strict hierarchical structures dominated by a breeding male. Males are fiercely protective of their females and will fight with other males. I am always astounded to see how aggressive animals are with their own kind, even animals such as the giraffe which we would consider gentle. With some animals zoos are able to hold male groups, particularly where there are no females nearby. Hence Werribee Open Range Zoo has a male group of giraffes, holding the surplus males for the region.

For other species such as zebra or social antelope, young males need to be removed from the group before the next season of breeding or their fathers will attack and possibly kill them. For these competitive herd species, zoos are often faced with a decision between killing surplus males or holding them on their own. For young males, being dispersed and separated from the herd is a natural process. During dispersal they experience increased risk and many are killed by predators or injured in fights with dominant males. Some argue that this is the most morally defendable time to cull surplus male antelope. At Zoos Victoria, we hold surplus male antelope and zebra off display, removed from the breeding group. We are vigilant of their wellbeing but believe we have a duty of care for their lives. If their quality of life deteriorates we would consider euthanasia.

Moral significance of animals

The moral significance of zoo animals is largely linked to two debates: the capacity of animals to be harmed or to suffer as a result of their cognitive abilities, and the harm done to animals by containing them.

Capacity to suffer

Animals' capacity to feel pain and to suffer will be discussed more extensively in Chapter 4, 'Animal welfare'. It is widely recognised that all animals, from insects to mammals, respond to painful stimulus. However, the key determinant in the capacity to suffer is cognitive ability. Mammals are most widely considered to have sufficient cognitive ability to experience the frustration of their needs and desires that results in suffering.

Most zoos hold a mix of animals: mammals, birds, reptiles, amphibians, fish and insects. Despite their popularity, the needs and costs of large mammals limit the proportion of any collection dedicated to mammals. At Melbourne Zoo, ~20% of its animals are mammals;[21] this is arguably typical for a traditional urban zoo. An open-range facility may hold a larger proportion of mammals, albeit in larger enclosures. Some facilities, such as insect houses, butterfly gardens, aquariums and museums, do not hold any mammals.

Reduction of wildness

While the species of animals held in zoos are considered wild, the individual animals are seldom wild, given that they have typically been bred in captivity and exposed to humans since birth. Moral concerns with respect to wild species arise as people believe that wild-caught animals are distressed by their close proximity to people and that their needs may not be adequately met in captivity. By contrast, most people are comfortable with the containment of domestic animals, which have been conditioned over thousands of years to cohabit with people.

Zoo marketing relies heavily on the 'wildness' of the animals in the collection. Promotions use the exotic nature of the collection animals to promote the excitement of the experience. The habitats and descriptors are used to increase interest in the wildness of the animals.

However, the animals in zoos are seldom actually wild; few zoo animals are sourced from the wild, and humans manage all aspects of their daily lives, including breeding, feeding and enrichment activities. Zoo animals live in human constructs and are conditioned to interact with humans on an ongoing basis. While a species may be considered wild, individual zoo animals are not.

Philosopher Claire Palmer identifies that defining 'domestic' and 'wildness' with respect to animals is not simple. She agrees broadly with the definition from Hettinger and Throop[22] that 'something is wild in a certain respect to the extent that it is not humanised in that respect'.[23] She holds that there are three ways in which the wildness of animals can be considered; namely constitutive, locational and behavioural. It is possible for an animal to be more wild or less wild in all of these respects.

Palmer identifies constitutive wildness as a result of the genetics and breeding of the species. Genetic fitness is the probability of a population being able to reproduce and survive in a given environment. It is desirable to maintain genetic diversity that mirrors a hypothetical wild population, with sufficient diversity to cope at a population level with disease and environmental changes. Zoos manage the genetics and breeding of zoo animals to retain genetic fitness and diversity, and as far as possible to replicate wild genetics. Good modern zoos reject the hybridisation of subspecies and the breeding of freaks or oddities or selective colour manifestations, as these are counter to the genetic fitness of a species.

The science of small population breeding and mate selection for genetic fitness has grown in line with the ambition of zoos to retain sustainable collections, to provide animals that display well and to provide a viable reservoir of animals to support conservation efforts in the wild. Without the retention of the genetic fitness of species, much of the preservation work of zoos would be futile. Further, excessive inbreeding can result in undesirable traits surfacing.

Despite best efforts there is a tendency to select for animals suited to captivity. Founders (the animals that commence a breeding program) tend to be selected on ease of capture, and survival is dependent on

calmness and suitability to captivity. Hence, over time, the genetics and traits that favour success in captivity can be widely represented within captive populations. Modern practices are striving to incorporate wild traits into the gene pool for animals of species that are designated for release in recovery programs.

Locationally, zoo animals live in entirely human-constructed habitats, although these habitats may incorporate the elements of a landscape that animals require or desire if they are to express natural behaviours. Due to their reliance on visitor numbers, most zoos are located within city surrounds or within a short distance from a major urban centre, often very far from the native habitat of the species they house. The tendency of zoos to hold exotic species results in species being held on continents far removed from their range state. The human control of zoo animals means that they are not wild in the way that rats are, within a human construct but without human supervision. Thus, in terms of location, zoo animals are not wild.

Behaviourally, zoo animals may be conditioned to limit their stress and to reduce fear responses that could be evoked by their ongoing close proximity to humans. When wild behaviours are considered important, for example in breeding animals for release, then particular care needs to be taken to reintroduce wild behaviours or to keep the population removed from day-to-day interactions with people.

It can be seen from the above discussion that zoo animals are generally not wild animals. They may be representatives of a wild species, but they are located entirely within human constructs, dependent on humans for their survival. Genetically their breeding and mate choices are planned by humans, and they are habituated to be comfortable in human company.

Caring for zoo animals

Zoo animals are the core of zoo operations and it is thus counterproductive and counterintuitive to maltreat them. Modern zoos generally apply the Five Freedoms originally developed by the British Farm Animal Welfare Council in 1979[24] and adopted by many animal welfare organisations. These are freedom from hunger and thirst, freedom from discomfort, freedom from pain, injury or disease,

freedom to express normal behaviour and freedom from fear and distress.[25] Current shifts in welfare thinking recognise positive welfare states and adopt a five domains model.[26]

Small enclosures and separation of predator and prey species reduce the complexity of life for zoo animals. The resulting lack of stimulation may result in poor mental health,[27] which can manifest in repetitive behaviours, self-harm and abuse of cage mates. The field of behavioural research and behavioural enrichment has emerged to enhance complexity and stimulate zoo animals. Studies show that much is possible with respect to creating the complexity of life and environment that most animals require.[28] For some species, humans become part of the complexity of the animals' routines and can provide welcome interaction. Enclosure design can allow animals to interact with visitors, creating safe stimulation for the animals.

Animals in the wild see humans as a threat and are usually fearful of human contact. This is an important survival instinct in animals for whom staying away from humans is vital to their survival. In a captive setting where animals are dependent on humans for all their welfare and are exposed all day to hundreds of visitors, fear of humans over a prolonged period may be detrimental to the animal's health and mental wellbeing. Long-term experience of fear may result in poor mental health, manifest in self-harm, conditioned helplessness or displaced aggression on cage mates. A highly fearful animal will hide, become helpless and depressed and may even sustain wounds through trying to escape from the contact with humans. Simple daily occurrences such as feeding and cleaning can be stressful for both the animal and the keeper.

Acceptance that zoo animals are not truly wild and that few will be expected to return to the wild allows a modern zoo to change the way that they treat their animals and thus reduce fear in the animals. It is possible, through conditioning and exposure, to help animals overcome their fear response. In addition, enclosure design is able to go a long way towards reducing fear by providing safe corners and retreat distance. Fear is seldom species-specific, and individual animals can be conditioned in ways that reduce stress and allow the animal to cope with and sometimes enjoy human interaction.

By their nature zoos must contain animals, for the safety of the animals and of the visitors to the zoos. Early attempts were clumsy and often cruel. Knowledge and technology have advanced to the point that ignorance no longer hampers animal care and welfare. Modern zoos should put the welfare of their animals above all other goals. Thus, while containment may be a necessary and intrinsic part of the modern zoo, causing pain and suffering in the animals in their care should not. Premature death is also not a necessary part of the operations of a modern zoo; veterinary teams and keepers strive to retain the animals' longevity and health.

Animal ethicist Lori Gruen believes that with respect to animals in captivity, 'The animal should benefit too, by being well cared for, protected from injury and hardship and being loved.'[29]

Animals of some species do not adjust well to captivity; they display poor mental health and manifest great discomfort in captivity. Examples of animals that resist containment include African pangolins, with very specific dietary requirements, and Cape clawless otters with their ability to escape most containment. Animals of these species have largely been removed from collections as they proved to be overly complex and expensive for zoos to maintain. Poor breeding success is an indicator of poor aptitude for captivity and has selected against animals of species that are not suited to display. Animals of some species are subject to ongoing scrutiny and debate, with indications that they may display behaviours consistent with poor quality of life.[30] Typically bears, great apes, canids (foxes, wolves, dogs, jackals, and coyotes), marine mammals and elephants are challenging to hold in the confines of city zoos or aquariums.

Enclosure design and development

Over time, zoo enclosures have evolved to replicate natural habitat and include natural elements such as trees, logs and organic substrate. Large, natural enclosures allow zoo animals to express a wider range of behaviours and enable them to exercise choice with respect to their activities. In an open-range zoo like the Werribee Open Range Zoo, the enclosures are extremely large and animals live in natural-sized

herds. The 'lower savannah' is 40 ha and is home to white rhino, zebra, giraffe, eland, waterbuck and ostrich. In addition, free-ranging species within the enclosure include birds, insects and rabbits. The animals living in this enclosure are largely unmanaged and free to behave as they desire.

Natural enclosures allow for zoo animals to live on natural surfaces such as sand, grass and mud. Trees are a source of shade and interest for animals. Advances in containment through netting, moats and glass allow visitors to enjoy the animals and to learn about them while providing animals with security and comfort.

Costs and space place limits on the ideal enclosures at many inner-city zoos. The animals in a collection need to be appropriate to the size and resources of the facility. Clearly, the possible diversity changes with the size of the animals and the complexity of their needs.

Visitors

Visitor services and interaction are a significant part of zoo operations. Each year over 700 million people visit zoos globally.[31] Visitors come from all walks of life. The profile of visitors to Zoos Victoria[32] shows that visitor groups generally include children, and the most commonly stated reason to visit a zoo is for entertainment. Zoos offer a safe and child-friendly setting for families to enjoy. Zoos provide opportunities for parents to talk to their children about animals and the environment, and even to share their value systems. The informal setting in gardens and outdoors limits the usual stress of taking children into an educational space. Contrast, for example, zoos with museums and libraries where children must often keep quiet. Zoos offer the combination of an educational and entertaining outing for both children and adults, with treat food (such as ice-cream and hamburgers) and active outdoor space.

Like any large visitor facility, zoos must accommodate the visitors' needs for entertainment, refreshment, retail and education. Most zoos rely on revenue from visitors to cover expenses; gate takings are dependent on the enjoyment of visitors and thus a sophisticated approach to visitors is needed. Zoos compete with retail centres, movies,

theme parks and other entertainment destinations for a share of discretionary spending. Only professionally run visitor facilities attract and retain visitors.

Zoos often walk a fine line between displaying animals in respectful and educational ways and exploiting animals for the pleasure and entertainment of visitors. Enclosures date quickly, through the constant wear and tear by the animals they contain and through changing norms and standards. As such, most zoos are in a constant cycle of renewal and refreshment. Each new investment strives to improve the facility for the wellbeing of the animals it houses and for the visiting public. New enclosures are used to inspire visits and play a role in the financial success of an organisation.

Many zoos train animals for demonstrations or displays. The best of these are educational and inspiring, introducing visitors to animals in new and interesting ways while focusing on conservation outcomes. Well-run zoos ensure that the talks respect natural behaviours and draw attention to the unique nature of animals. Conservation status and efforts to protect wild animals are highlighted. The worst animal displays are little more than cheap titillation, often at the expense of the animal. Few zoos still practise disrespectful and demeaning animal shows, such as chimpanzee tea parties and elephant rides. Unfortunately many zoos still provide inappropriate, disrespectful and demeaning enclosures.

Zoos may also provide opportunities for visitors, particularly school groups, to make contact with a select group of animals. Up-close experiences are exhilarating whether one is posing for a picture or learning about body coverings. For zoos to be successful, in both the safety of the visitor and the welfare of the animals, there must be close supervision, clear policies and limits on the appropriate animals for such encounters.

Zoos evolve in line with the demands and expectations of their visiting public. Most well-run zoos conduct annual surveys into the opinions and attitudes of visitors. Knowledge of visitor opinions is an important part of the evolution of zoos. For example, in 2007 the American Zoo and Aquarium Association undertook a multi-year study entitled *Why Zoos and Aquariums Matter: Assessing the Impact of a*

Visit to a Zoo or Aquarium[33] which measured the impact of a visit to a zoo or aquarium on visitors' beliefs about conservation, stewardship and their love of animals. The study found that 54% of individuals interviewed offered comments about the elevated awareness of their impact on conservation following their visit to zoo. Forty-two per cent commented on the educational role of zoos.

Education

Most zoos see significant numbers of school groups. I have observed that the percentage of school-based visits can vary from 10% to 50% of total visitor numbers. Education programs are designed to meet curriculum requirements and in many developing countries supplement shortfalls in formal education. Zoos offer a unique, interactive learning opportunity outside the confines of the classroom. Children are engaged with animals and readily absorb the information offered at zoos.

Parents bring their children to zoos for recreation and education. The visit is a time to engage with their children around issues of animals and the environment. Families share their values and talk about the mysteries of the planet. Informal learning with your family, friends and peers is an important part of a zoo visit. A modern zoo provides that platform for sharing knowledge and learning.

Conservation

Over the last 50 years conservation has emerged as an important part of zoo operations. Deep bonds can form between people and the animals they work with and can result in a genuine desire to help animals in the wild. Zoos have been instrumental in working to preserve habitat, to secure wild populations and to breed and reintroduce threatened species.

In her book *Hope for Animals and Their World*, Jane Goodall shares stories of the recovery of species from the brink of extinction. For six species that actually became extinct in the wild, she says, 'They were saved only through captive breeding with the goal of returning their progeny to the wild once their numbers had increased and areas of habitat had been set aside for their lasting protection. But the issue of

captive breeding was – and still is – highly controversial. There are objections to such projects from those who feel last-minute solutions will not work, and are a waste of time and above all money. Fortunately the passionate biologists who worked to save the six species refused to listen to them.'[34]

Zoo critics often claim that zoos only engage in conservation work as a moral justification for the holding of animals; however, the record shows that zoos have invested significant funds, effort and skills into conservation over a long period of time. In a survey of regional zoo associations, Gusset and Dick[35] showed that zoos contribute over $360 million per year to conservation work, direct field work and educational projects.

For species approaching extinction, zoos can act as a last chance for survival. Recovery programs are established to coordinate the efforts of field conservationist and wildlife authorities. As populations of those species diminish it is not unusual for zoos to commence captive breeding programs. Captive breeding acts in several ways to stave off extinction. In some cases captive-bred individuals may be released back into the wild, supplementing wild populations. This is most successful in situations where individuals are at greatest threat during a particular life stage. For example, turtle eggs may be removed from high-risk locations until after they hatch, thus increasing the number of turtles that survive to adulthood. Crocodile programs have also been successful in protecting eggs and hatchlings, releasing hatchlings once they are better equipped to protect themselves. Captive-breeding programs may be used to hold populations as insurance against catastrophic failure in the wild. The Tasmanian devil captive-breeding program aims to hold 2000 devils in captive care, largely in mainland Australian zoos, so that in the event that facial tumour disease drives the Tasmanian wild population to extinction the species can be reintroduced from the disease-free insurance population.

Colin Tudge[36] estimates that with effort and dedication zoos can probably hold all 2000 terrestrial vertebrate species in need of captive breeding. Many species are small and, while they may have complex needs, they are often not particularly onerous to hold.

In 2013 colleagues and I analysed the global zoo collection, comprising the animal collections of 800 zoos that use the International Species Information System to store their records, and wrote a paper for the World Association of Zoos and Aquariums on the findings.[37] We found that the percentage of threatened species (as per all International Union for Conservation of Nature (IUCN) categories of threat) held in zoos is 5% of threatened amphibians, 18% of threatened bird species, 24% of threatened mammals and, significantly, 45% of threatened reptiles. Supporting Colin Tudge's claim, we found that if zoos replaced common species with threatened species, ignoring the practical challenges or popular appeal of such a step, zoos would be able to hold representatives of all threatened reptiles, birds and mammals. No doubt the mammals would prove complex, but it is conceivable that zoos could hold representatives of every endangered reptile, without building new enclosures, by exchanging common reptiles for endangered reptiles.

At a regional level zoos are able to shore up the numbers of the most critically endangered local species. In 2012 Zoos Victoria conducted a survey of all Victorian species and identified 16 species that are under threat of extinction by 2020 if nothing is done to secure them. Zoos Victoria has committed to a program to secure all 16 threatened species, developing the skills and knowledge to hold and breed these species where appropriate. In all cases the captive breeding is done in conjunction with wildlife organisations, recovery teams and the habitat managers. If every zoo commits to preventing the extinction of local species, zoos would be a powerful force in halting the loss of species.

Protection of the wild and the natural habitat is an important step in conserving biodiversity. The Alliance for Zero Extinction and the Convention of Biodiversity have identified the need to preserve landscapes and habitats. Well-run zoos work with other non-government organisations (NGOs), wildlife authorities and governments to secure wildlife in the wild. Field projects range from reforestation to support of enforcement agencies and game wardens and education programs for local communities.[38]

An emerging and powerful role for zoos in conservation is inspiring visitors to undertake conservation actions. Zoos are often respected and

influential sources of advice and knowledge within their community. Visitor-based conservation uses behaviour-change models to inspire and empower visitors to change their behaviours in ways that will help to protect wildlife or reduce human-caused threats to animals. Considering the significant number of people who visit zoos, small behaviour changes have the potential to make a significant impact. Zoos Victoria has demonstrated that visitors to zoos are receptive to learning how their decisions impact on animals and will change their behaviours when they are presented with realistic and simple alternatives. 'Wipe for Wildlife' encouraged visitors to convert to recycled toilet paper. Researchers found that following a visit to Healesville Sanctuary and exposure to the 'Wipe for Wildlife' campaign, 30% of non-users converted to recycled toilet paper and remained converted when contacted a month later.[39]

The large visitor base is powerful in advocating for change. In 2009, Melbourne Zoo undertook a campaign demanding labelling of all food products in Australia that contained palm oil. The campaign was adopted by 12 zoos around Australia and in 12 months secured 167 000 signatures. The outcome of the campaign was considered in a Senate Inquiry[40] into the labelling of palm oil. While the campaign did not achieve the desired outcome of labelling of palm oil on food products, it did highlight the plight of rainforest species and the destruction of habitat for palm oil plantations, spurring ongoing discussions with industry. By 2013 Zoos Victoria and the 'Don't Palm Us Off' campaign had secured commitments from all major food manufacturers in Australia that they will procure only certified sustainable palm oil by 2015. By 2015 many manufacturers are procuring sustainable palm oil. The reach of the zoo, with over two million visitors, dedicated messaging and interactive activities empowering visitor action, was able to bring about change at an industry level. In 2017 the campaign calls for mandatory labelling to ensure the sustainability of the change.[41]

With the skills and resources to protect and save threatened species and the reach and impact of face-to-face communication with decision makers and visitors, zoos are well placed to be influential conservation organisations.

Well-run modern zoos

In the estimated 200 000 years of modern human existence, during which animals and humans have shared habitats, competed for food and learnt to collaborate for survival, zoos are a recent development. Spanning the 225 years since the inclusion of animals in the Jardin des Plantes in 1790, zoos have emerged as a place for citizens to see and learn about animals, mirroring the democratisation and urbanisation of human society.

Zoos have both followed and led community views and values. The early developments of zoos took place during a time when animals were not considered as morally important, and early practices resulted in significant deaths and suffering. Today's society celebrates individual humans as autonomous and demands respectful treatment, and it is thus expected that we will increasingly consider animals as individuals that should be treated with respect.

Today zoos are exploring what it means to be relevant in a rapidly changing world. The digital revolution has allowed for much greater access to videos and documentaries. Children today know more about animals than ever before, with access to information only a button away. We also know more about the capacities and capabilities of animals to feel emotions such as joy and sadness, to experience and to think.[42] We can no longer believe that animals are merely moving through life like warm, furry, protein-based machines.

A well-run modern zoo is a zoo that uses the best available knowledge and technology to make evidence-based decisions, listens to public sentiment and is committed to animals, as individuals and as species. Well-run zoos inform public views, leading the expansion of knowledge of animals and the environment and at all times demonstrating a respectful way of treating animals, people and the environment.

Adrian Franklin observes, 'We are very prone to loneliness these days, and significant animals are a remarkable substitute when it is just not feasible to surround ourselves with significant humans.'[43] Zoos offer an opportunity for urbanised people to know and appreciate animals in settings that are convenient and safe. In a good modern zoo,

the welfare and care of the animals receives as much attention as business operations or visitor services. A focus on conservation and the dedication of zoos to transform into conservation organisations results in the benefits of zoo operations flowing beyond the zoo walls.

The complexity of zoo operations stems from a core business model of holding animals of wild species in urban settings. While much has changed over the 225 years of zoo history, zoos remain interesting and challenging places. Over time, an increasing gap has emerged between well-run zoos and bad zoos, the clearest indication being the extent of care offered to the animals that live in the zoos. It is possible to find zoos that have not changed since inception, but for many zoos the changes are remarkable: cages have been replaced with habitats, animals are conditioned to thrive in captive settings, and the commitment to conservation is clear in all that they do.

Morality asks how we should treat others, and thus zoos are a good place to pause and think about the relationships humans have with animals of a large range of species. While zoos are long-lived cultural icons, they are also a place where humans develop their moral intuition with respect to animals. To thrive in a community, zoos need to respond to shifting moral sentiments, including disquiet.

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3

The moral disquiet with zoos

> I know zoos are no longer in people's good graces. Religion faces the same problem. Certain illusions about freedom plague them both.[1]

Introduction

For hundreds of years zoos operated as morally uncontested institutions, but in recent decades an increased understanding of the intelligence and sentience of animals has led to a greater awareness of the ability of animals to suffer. In line with this changing attitude to animals, zoos have been challenged to change their operations to minimise the physical and emotional suffering of their animals and to increase the benefits from zoos such as education, species preservation and entertainment.

People leave zoos relaxed and tired after having spent an enjoyable day walking through the zoo gardens, seeing animals, learning new facts and perhaps contemplating our impacts on animals in the wild. However, people also leave zoos with a sense of sadness, of having seen something that makes them uncomfortable. Some people avoid zoos, believing that zoos perpetuate ongoing animal cruelty.

Societal change with respect to zoos is evident on several fronts. Animal welfare organisations are vocal in their calls for the reform of zoos, while the animal rights movement is opposed to zoos and petitions for their closure. In response, governments have introduced standards and legal frameworks to govern zoo operations, thus attempting to limit or eradicate harmful practices. Legal challenges, seeking limited rights for animals or the cessation of certain practices, and recent legal judgements, indicate the shifting sentiment in the application of animal welfare laws.

When exposed to the depth and ferocity of animal welfare arguments one may be tempted to think that animal-based industries or practices are under imminent threat of moral censure, but in reality moral change is slow. In 1829 William Drummond won an essay competition with an essay on the rights of animals; later (1838) his work was published as the book *The Rights of Animals and Man's Obligation to Treat Them with Humanity*.[2] It makes humbling reading to see that, while much has changed in 180 years, much remains the same, particularly the mistreatment of animals.

Industries that use animals for research, food production or entertainment are increasingly subject to scrutiny. Live animal exports and various production methods are regularly in the media, with calls for intervention on behalf of the animals. The defence that animals have no interests is largely archaic; first-world societies understand and accept that animals can suffer and thus do experience harm. It is widely held that animals warrant, at the very least, humane treatment, creating a duty of care on people who choose to work with animals.

The very nature of zoos is that they own and use animals (largely species considered to be wild or exotic) for conservation, education and entertainment outcomes. Zoos contain animals, creating a relationship of vulnerability and a dependence on humans for their care and protection. Animals are displayed to the public, generally in exchange for financial payment.

Without conceding the strength of arguments or rebuttals, this chapter explores the ethical landscape within which zoos operate, in particular indicators of moral disquiet. Several different indicators are useful in exploring such disquiet. Media reports and letters of complaint highlight public sentiment; the number and ferocity can be an indicator of the level of discomfort. Ethicists and philosophers write books and articles, drawing attention to the disquiet. Reformers call for change and use the machinery of the legal system to reform or abolish an offending industry or practice. Parties with a vested interest in the industry or practice respond, often with sophisticated strategies. They may foresee growing disquiet and sacrifice a particularly offensive practice or adopt defensive positioning.

Public commentary

Letters, social media and traditional media coverage are good indicators of public concern. Zoos around the world receive letters of both praise and criticism. In the zoos I have been involved in the compliments far exceed the complaints, but we should not be misled by numbers. At Melbourne Zoo concerns are mostly related to the care of the elephants. In most cases visitors would like more information about the welfare of the elephants and are usually satisfied with a response that articulates the level of care provided. The prevalence of letters about the elephants flags the growing concern among the general public that inner-city zoos may be unable to provide the space needed for these large, social mammals.

In 2008 Zoos Victoria made headlines, 'Zoo rocked by abuse allegations'.[3] The article, and ongoing comment for the next week, focused on the disclosure of several incidents and practices that were held by the journalists to be welfare infringements. The editor of the *Age* newspaper commented on 22 January 2008, 'What then is a zoo's value? To satisfy human curiosity? To educate? To preserve? To entertain? It is all of the above. However, it is an inescapable fact that an animal in a zoo is an animal out of its natural world, despite the best of intentions in trying to recreate the creature's environment. It is also inescapable that people love being able to see so closely creatures not within their world. Who hasn't laughed at the meerkats? Yet there is a universe of difference from being entertained and being ringside at a circus. It is a question of balance.'[4]

The public scrutiny led to several changes within Zoos Victoria. An independent Animal Welfare Peer Review Committee was established by the Victorian Minister for Environment to oversee the investigation of any incident resulting in an avoidable animal death and the implementation of reforms to avoid future incidents. Zoos Victoria developed an Animal Welfare Code based on the five freedoms (see p. 65 for a discussion on the Five Freedoms model); staff training was intensified and annual animal welfare surveys are undertaken. Media coverage of Zoos Victoria has been positive since that time, but ongoing requests for information from journalists remind management that there is a high level of scrutiny of the facility.

Around the world, zoos are under scrutiny from the public, NGOs and the media. When practices or the operational performance of a zoo or aquarium fail to meet expectations the World Association of Zoos and Aquariums receives letters of complaint, most commonly referring to the conditions in which animals are held at particular zoos.

For many people, the fact that animals do not choose to be in zoos imposes an extra duty of care on the zoos. The implied sentiment from visitors and the media is that there is a need for impartial people to keep a watchful eye on those who run zoos, to ensure the welfare of the animals and that the institutions are professionally run.

Non-government organisations and interest groups

Significant social changes are generally brought about by small groups of passionate individuals that are able to gather public and political support. These individuals require support and resources and tend to group together in NGOs with a specific charter and reason for existence. The existence of such groups focused on the operations of zoos and aquariums is an indication of disquiet, and of the perceived need for change within zoos and aquariums.

The American zoo industry has identified 212 organisations that are focused on animals and 26 organisations or universities with a focus on animal law and legislation in operation in the United States and Canada. A small sample of the kinds of organisations and their positions with respect to zoos is reflected below.

Born Free is a British organisation started in 1983. 'The Born Free Foundation believes that wild animals should not be kept in captivity. Nevertheless, while zoos exist, it is imperative that zoo legislation be applied and enforced to ensure that certain standards of animal welfare are met.'[5]

Zoocheck Canada is an animal protection charity established in 1984. 'Zoocheck works to stop the inhumane and destructive "roadside zoo" industry, opposes abusive animal management practices wherever they occur and promotes zoo industry reform.'[6] Zoocheck has published several reports with concrete and proactive suggestions for improvement.

People for the Ethical Treatment of Animals (PETA) is vocal in its anti-zoo stance. PETA does not accept that zoos can be reformed,

believing that the time for zoos has gone. In terms of assisting in their anti-zoos stance, PETA suggests that visitors should not attend zoos anymore. 'Zoos will be forced to stop breeding and capturing more animals from the wild if their financial support disappears, so the most important way to help animals who are imprisoned in zoos is to boycott zoos and urge everyone you know to do the same.'[7]

In contrast, many zoos are supported by Friends of the Zoo organisations. In Victoria, for example, 'Friends of the Zoos (FOTZ) is an independent, non-profit organisation established in 1980 to support Zoos Victoria and animal conservation.'[8] Typically, Friends organisations provide volunteer services to zoos, fundraise and engage with visitors.

Books and publications

The publication of books and papers is a record of the thinking, debate and argument by academics, philosophers and activists. Writers uncomfortable with the prevailing paradigm publish their arguments to advance their cause and spur action.

The popular nature of zoos has resulted in numerous books related to zoos. These can be broadly categorised as books about the history or events at a particular zoo, books that record or inform animal practices and knowledge, and books that comment on zoos more broadly. The first two categories generally accept zoos and discuss changes or best practice, occasionally touching on the ethical implications of zoos.

Peter Singer's *Animal Liberation* (1975),[9] and Tom Regan's *The Case for Animal Rights* (1983),[10] provided a new way of thinking about animals and the moral duties owed to them. The new awareness of animals and their capacity to suffer in a morally meaningful way led to the emergence of publications from authors such as actress Virginia McKenna[11] and academic Randy Malamud[12] expressing their concerns with zoos. Books on ethics include chapters on animal ethics and often contain essays on a specific aspect of zoo operations as an example of a practice that is morally challenging or illuminates a particular point of moral disquiet.

In 1993 a group of philosophers, scientists and writers were brought together by Paola Cavalieri and Peter Singer to form the Great Ape Project.[13] The project examines our moral obligation to extend equality

beyond the species boundary, proposing the inclusion of apes in the sphere of moral concern. In particular, the Great Ape Project calls for rights to life, protection of individual liberty and the prohibition of torture for great apes.

Stephen Bostock's *Zoos and Animal Rights: The Ethics of Keeping Animals*[14] is one of the most comprehensive accounts of the ethical implications of containing animals. In 1995 another collection of essays on zoo ethics was curated by Bryan Norton and others. *Ethics on the Ark*[15] considers a wide range of topics with respect to animal ethics and zoo operations, providing thoughtful and constructive arguments to advance zoos in a modern moral framework.

By 2000 the literature had moved to discussions on changes to policy and new directions for zoos. Hancocks,[16] Margodt[17] and Tudge[18] typify the type of literature available, recommending changes to zoo philosophy and design.

In parallel, significant work has been undertaken on the capacity and capabilities of animals. Authors such as Morell,[19] Goodall[20] and Bekoff[21] challenge our knowledge of animals and public perceptions about the abilities of animals. Emerging knowledge and research show that animals are more sophisticated and complex than previously thought.

Documentaries

Documentaries can be a powerful medium for the detailed exploration of issues and are effective in exploring and exposing ethical challenges with respect to animals and captivity.

The 2009 documentary film *The Cove* describes the annual killing of dolphins in a national park at Taiji, Wakayama, Japan, and the removal of live dolphins for aquariums. *Blackfish*, a 2013 documentary film about orcas at SeaWorld in the United States, explores the practice of capturing and moving young animals and exposes the injury or deaths of trainers involved with captive orcas. Both of these documentaries have resulted in high numbers of emails to aquariums displaying marine mammals and to affiliated organisations and associations. Further, there are indications of declining sponsorship, visitation and share price.

Zoo-based documentaries are common, often depicting the welfare and veterinary care of animals in zoos. *The Zoo* is a long-running, but uncritical, New Zealand documentary series showing the animals and their keepers at Auckland Zoo. The series explores everything from new arrivals and births, to the fights, illnesses and mating rituals. Understanding public interest in zoos, the series reveals how animals are fed and how they live. Steve Irwin developed and promoted the role of zoos and conservation through his show *Crocodile Hunter*. Part entertainer and part educator, Steve Irwin engaged young audiences from 130 countries with the wonder of wildlife.

In 2013 the Canadian Broadcast Corporation explored the changing face of zoos and their challenges in a documentary called *Zoo Revolution*. The documentary provides a remarkably balanced view of modern zoos, questioning why zoos still exist while acknowledging the potential for zoos to transform into conservation organisations. Ultimately the viewer is left with a sense of the current debate which has yet to reach a conclusion.

Like books and stories, documentaries tend to provide a single viewpoint on animal welfare and zoos. While people are still fascinated by zoos, there is an increase in critical and thought-provoking documentaries. The vivid nature of the documentary medium is very compelling and provides access to animal nature and the lives of those who work with animals in a way that was not previously available.

Ethical discussions

There is no single approach to animal ethics or zoos. Many different approaches have relevant things to say. In subsequent chapters, each ethical framework and its impact and influence on zoos will be discussed in far greater detail. However, the existence of so many ethical approaches to animals, and by extension to zoos, is an indication of wide moral interest. While animal ethics publications may touch on zoos, most animal ethics philosophers focus on animal practices that use large numbers of animals or are particularly brutal.

Animal ethics covers fractured and challenging territory. Several competing ethical positions, with different groundings and differing

underlying ethical frameworks, are advanced by different ethical theorists. To date, no single position has emerged that offers a tidy and compelling view of the way that humans should engage with animals across the dynamic and complex landscape of human–animal relationships. It would be fair to say that human relationships to animals and moral views with respect to animals are often complex, dysfunctional and inconsistent. Even the use of the word 'animal' to describe thousands of different species, with different capacities and different needs and vastly different relationships with humans, adds to the confusion.

Two frameworks dominate animal ethics.[22] Animal welfare is concerned with the welfare of animals and the regulation of their use. Animal rights is concerned with the use of animals and seeks the abolition of practices that exploit animals and treat them as property. Both animal welfare and animal rights challenge zoos and their relationships with animals, but on different grounds, and they call for different resolutions of their concerns. Animal welfare calls for reforms to zoos, particularly with respect to the care of animals, while animal rights calls for rights to life, liberty and self-determination or autonomy being extended to animals, and more often challenges the very existence of zoos.

Well-run zoos are conscious of ethical discussions and have become skilled at applying the consequential ethics framework to weigh up the benefits of zoo operations against the costs to individual animals (Chapter 6). Over time, costs have been reduced while the benefits have been enhanced through education, research and conservation programs. Virtue and environmental ethics (Chapters 7 and 8) add richness to ethical consideration of zoos.

Moral consideration of animals

Zoos are part of a larger disquiet on the use and treatment of animals. Zoos are a small part of human and animal interactions and are subject to the wider moral considerations of animals. The nature of zoos means that they are more open to public view than other animal uses, such as in laboratories and factory farms. Discussions on the acceptability of

laboratory testing on animals, agricultural practices and care of pets all impact on zoos to some extent. Moral consideration of animals is determined by the complex and intertwined relationship between humans and animals, the nature of animals and their abilities, and a combination of both.

Claire Palmer[23] discusses animal ethics in context, proposing that different duties are owed to wild animals, living outside human influence, and to domestic animals that live in a vulnerable or dependent relationship with humans. An action such as choosing to hold or care for animals results in ongoing responsibilities regardless of the nature of the animal. A person taking a puppy home accepts a duty of care to that animal, regardless of the animal's abilities.

In many situations the rightness of an action by a human may well rest on the ability of the animal to experience that action and should be sensible in relation to the abilities of the animals. In considering harm, it is not considered necessary for an individual to know that they are being harmed, but it is necessary for the harm to be meaningful in respect to the capacity of the animal. For example, it is not considered wrong to prevent animals from voting, as we understand that they are unable to take part in an election. When it comes to the ethical consideration of animals, not all animals are equal and we are able to identify several distinctions between animals that are morally relevant.

Cognitive and behavioural studies and increased observations of animals are providing a new understanding of the capacities of animals and their limitations and differences. In his last work in 1881, Darwin[24] investigated behaviours and intelligence in earthworms. Studies record the abilities of rats[25] and pigeons[26] to engage in complex tasks and to display preferences. For more complex animals such as the great apes, there is a significant body of work showing their capacity for language, emotion and the ability to express clear preferences. In *Chimpanzee Politics: Power and Sex among Apes*, Frans de Waal follows the complex interactions between the chimpanzees at Arnhem Zoo.[27] His account of the social process and shifts in favour and power in the group leave little doubt of the sophistication of relationships and interactions between chimpanzees. I particularly like his descriptions of how the female

chimpanzees moderate and mitigate conflicts between males, going as far as confiscating rocks to minimise harm in fights. A little provocatively he observes, 'The contrasts between sexes cannot be denied. Stated in the simplest terms, one is protective and personally committed, the other is strategic and status oriented. The picture looks familiar?'[28]

David Hancocks tells of a male gorilla at Woodland Park Zoo who watched the keepers on the indoor monitor while they hid treats in the outdoor enclosure. Once he was provided with access to the outdoor enclosure he would go straight to the hidden treats. The gorilla showed a significant intelligence in being able to understand the function of the monitor and in being able to recognise the movements of the keepers on the monitor and locate them within the outdoor space.[29]

Our knowledge of animals, and by extension our moral duties to animals, has changed dramatically over the last 100 years. No doubt it will change more, as we expand our knowledge and open our minds to the fact that animals' experience of events may be good, bad or neutral. The increased knowledge of animals enables us to care for them better, but is also an indication of moral disquiet with the treatment of animals. This disquiet has inspired academics and researchers to spend increased time and resources in advancing our understanding of animals.

Pressure to change

Moral disquiet is evident in pressure for change. Those who desire to see change have access to media and publishing as well as access to legal recourse. In considering the zoo industry and animals in captivity, there is evidence of pressure for change in literature and legislation.

Calls for closure

The call for the closure of all zoos is based on the premise that there is something wrong with even the best zoos and that simple reform will not suffice. Writers and philosophers Jameson,[30] Malamud[31] and McKenna[32] are active in calling for the abolition of all zoos, largely based on virtue ethics and animal rights arguments. People for the Ethical Treatment of Animals (PETA) actively advocates for the closure of all zoos.[33] While the calls are emotive, drawing on the pain and suffering of animals, they have not achieved significant traction to

date. Calls for closure are hampered by a lack of strong regulations to facilitate the closure of all zoos, the popularity of zoos as witnessed by visitor numbers, and the consequences of relocating or destroying millions of zoo animals. In Costa Rica in 2013, former Environment Minister René Castro announced an intention to close both zoos in Costa Rica.[34] The proposal was successfully challenged in court and the zoos continue to operate under a renewed 10-year contract.

Animal welfare proponents call for closure of specific zoos, citing extreme welfare neglect as a basis for closure. ZooCheck publishes reports on their assessments of specific zoos, most recently in England, Germany and Mexico.[35] Recommendations range from changes required to improve animal welfare to calls for closure.

In Australia in 2012, Zoos Victoria assisted wildlife authorities after the closure of a private wildlife park. The park was closed by authorities after failing to meet the minimum standards required. The closure was brought about by government officials after numerous public complaints and regulatory breaches. The system of fair practice and allowing the owners time to amend their practices means that in reality the closure of a zoo or an animal park is a slow process. The period of conflict creates uncertainty, lack of investment and often leads to a downward spiral in animal welfare conditions.

Calls for reform and improvement

Calls for reform of zoos focus on either practices that are deemed inappropriate or on particular zoos that may be breaching certain welfare requirements. It is probably fair to say that there is always room for improvement at zoos. As enclosures date and as our knowledge of the needs and desires of animals improve there will be a recognised need for ongoing improvements. Many zoos work with animal welfare organisations to make continuous improvements in animal welfare and the care provided to animals in captivity. Annual zoo conferences dating back to 1935 identify ways that zoos can improve their operations.[36]

Over time, zoo practices have changed together with changing welfare sentiment. Well-run zoos focus on reducing the harm to animals in their care, improving their level of positive welfare and

maximising the benefits of holding captive animals. The practice of thinking through the benefits and costs to both humans and animals has helped zoos to improve practices and narratives. In many countries the feeding of zoo animals with live animals is prohibited, the collection of animals from the wild is limited to special cases, and animal performances have been altered from sensational entertainment to educational talks. Training practices and routines now focus on positive reinforcement and natural behaviours.

At any time, several zoo practices are under scrutiny as zoo professionals strive to improve their operations. Current practices in the spotlight include the wild capture of marine mammals and the euthanasia of healthy but surplus zoo animals.

Reforms to laws and standards

Zoos are legal in every country in the world. However, legality is no proof of moral acceptability. Rather, legality can be seen as a set of rules that guide human behaviour to limit the impacts of actions. Many countries have laws with respect to animal welfare, with a range of effectiveness and a range of exclusions, an indication that while animals are generally viewed as property there are limitations on what an owner may do with this property. While some industries rely on self-regulation, the captive care of animals generally attracts some level of government control and regulation.

An indicator of current moral disquiet is changes in legislation or regulations. Australia is in the process of finalising standards for keeping of wild animals. The standards provide guidelines on minimum acceptable practices and are a response to the ongoing calls for welfare reforms in the keeping of wild animals.

Individual regions and countries have systems of zoo accreditation that are designed to raise the professionalism and standing of zoos. In most countries it is largely left up to the good intentions of the people who run zoos to meet accreditation standards. In Europe and the United States, accreditation is a requirement of membership of the regional association and membership of the World Association of Zoos and Aquariums (WAZA). In addition, WAZA requires all members to

sign and abide by the WAZA Ethics and Welfare Code. Member zoos collaborate on breeding programs, so there is significant value in belonging to a regional or global zoo association. Animal trades predominantly take place between member zoos at no cost, providing a significant incentive to retain membership and abide by welfare codes. Yet lack of accreditation does not stop zoo operations, and in all regions significant numbers of unaccredited zoos exist.

Changes to legislation are slower than changes to moral sentiment. Considering the vested interests in protecting the status quo, often only strong evidence, facts or emotional argument will motivate changes to legislation.

Legal challenges

Legal challenges indicate moral disquiet with an industry or practice. Using laws to attack specific practices is effective because success creates precedents that can be used to reform an industry. A significant ruling will often create fertile ground for legislative changes. Even unsuccessful legal cases move a debate or argument forward by clarifying and articulating issues and concerns. Extreme claims may also be useful in making incremental change seem more acceptable.

In Germany in 2010,[37] a court ruled that the killing of hybrid tiger cubs by a zoo constituted an infringement of animal cruelty legislation, the reason for euthanising the cubs being deemed to be insufficient. It is still to be seen if this will be a landmark case, protecting animals from death for frivolous, economic or convenience reasons.

In 2012, PETA took Sea World in the United States to court on the basis that orca were being treated as slaves.[38] The case was unsuccessful but highlighted the shifting attitudes to animals in captivity and in particular attitudes to large, intelligent animals used in shows.

Response to ethical concerns

An industry or party that is experiencing challenges on moral grounds has a choice to ignore the challenge, to defend their position or to adapt their practices. Adaptive and defensive strategies may be indications of an industry accepting the existence of some level of moral disquiet.

Ignoring the challenge

Where the challenge is limited to a small part of society, or is not of real moral concern, the issue tends to remain as a small concern raised on a regular basis by the same group of people but never gaining wider support or traction. In such cases it is usual to hold a watching brief but to refrain from actions that would expand the issue. Ignoring a challenge is no indication that the challenge has no moral grounds; it is rather a reflection of the perceived risk of the challenge being successful.

Defensive strategies

Industries deploy several defensive strategies to address the risks posed by a challenge to their operations. The strategies range from sophisticated and subtle to blatant and obvious. All strategies have the same premise: to defend the ongoing existence and operations of the industry. One is most likely to see defensive strategies where the issue that is creating the moral concern is intrinsic to the very nature of the operations, or where change would be costly or impact on core strategic goals.

The first strategy usually deployed is denial; a rejection of the claim, usually supported by information, facts and research by the organisation. High levels of imbalance in knowledge, social prestige, access to resources and information make this an attractive strategy. Other strategies include deflection, which draws attention away from the primary target by offering an alternative target more likely to rouse emotions and criticism, while justification cites the benefits to people and the economy as a primary reason to continue a practice.

Offensive strategies are another form of defence, attacking the source of the disquiet by attacking individuals who have raised or highlighted the concerns or isolating and denying funding to those who would raise moral concerns.

Adaptive strategies

Reform strategies can best be understood as adaptive practices. As concerns are raised they are investigated and, where they are found to have a basis, the industry reforms. In most cases the challenges are not terminal to the industry.

Adaptive strategies are evident in public institutions where the underlying benefit is well understood but individual practices may infringe the rights or welfare of others. Adaptive strategies are often driven by people within an industry. The people working in an industry are best placed to see the impacts of practices. Where these outcomes are detrimental to the overall goal or public good of their industry, it is common to see change from within. In these cases the industry does not wait for external calls for reform, it adapts on a continual basis.

The zoo response

Zoos are public institutions where the underlying benefits of conservation, knowledge and education and recreation are well articulated and understood. Like many other public institutions, zoos have engaged with shifting moral sentiment by reforming to address areas of moral concern.

Zoos have adopted the approach of engagement and reform over the last 77 years. The establishment in 1935 of an international association of zoos and aquariums,[39] with records, minutes and speeches, provides a good indication of the ways that the zoo community has responded to moral challenges.

The zoo community published its first code of animal welfare in 1956,[40] and members fully endorsed the work of the British Royal Society for the Protection of Animals. In 1993, following the increased attention of the anti-zoo movement and the publication of the *Great Ape Project*,[41] zoos once again focused on animal welfare. Several animal welfare codes have been approved over the years, with the current WAZA Code of Ethics and Animal Welfare[42] being adopted in 2003. The code identifies the main areas of current concern, such as animal welfare, exhibit standards, acquisition of animals and euthanasia. The code also states that WAZA requires members to comply with international conventions on the movements of animals and opposes certain destructive practices.

The anti-zoo movement is first described in zoo conferences in 1984.[43] To address the challenges posed, zoo directors embarked on a

strategy of disclosure and promoting the positive outcomes of zoos in conservation and education. The ongoing debate at WAZA is focused on the non-aligned and dysfunctional zoos, which are typically zoos that are not members of any association.

The conservation potential of zoos was recognised from the beginning of the international association of zoos and aquariums.[44] Rather than a response to moral criticism and a justification of existence, conservation outcomes have been a core operational philosophy dating back to 1935. The conservation role of zoos has deep roots and significant funds are allocated to conservation. In 1946[45] zoos expressed a concern about the protection of wildlife and wild places and in 1947 members were asked to observe the following principles:

- Zoos should abstain from dealing in protected species.
- Zoos should try to ensure the reproduction of species in danger of extinction.
- A list of rare and protected species should be drawn up.
- An organisation should be set up to manage breeding centres for these species.

Through the history of zoos we can plot the changes in public sentiment and understanding of animals within the society in which the zoo operates. In well-run zoos, small cages and chimpanzee tea parties are gone, along with live feeds and elephant rides. As public institutions zoos reflect societal values; as these change, so do zoos. Zoos seldom argue about the morality of a practice or their operations; they adapt.

A case to be answered

Zoos are in an interesting place in the moral landscape. Letters of complaint, books, articles and documentaries draw attention to increasing disquiet with the morality of zoos, in particular the ways that zoos care for animals or use them for human benefit. Legal cases against institutions based on animal welfare laws and regulations are not uncommon. As Tom Regan says, it appears that zoos have a case to answer.[46]

The history of zoos is a story of change; with each challenge and the acquisition of new knowledge, zoos have re-evaluated their

operations and changed. A well-run modern zoo has little similarity to a zoo of 50 or 100 years ago. No doubt the zoos of the future will also be very different, as zoos continue to adapt and change to stay relevant to public sentiment. This book aims to increase zoos' philosophical expertise so that zoos can engage more fully in dialogue with philosophers around the moral disquiet with zoos.

There are many indicators to show that holding and using animals for human purposes, no matter how noble, is an area of moral disquiet. We will now turn to the topic of ethics to discover exactly what the moral disquiet entails and how zoos might address such moral disquiet.

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4

Animal welfare

A righteous man is merciful to his beast.[1]

Introduction

If we accept that animals, like people, are beings who can experience events and that the experience of events can be positive, negative or neutral, then we are on the road to understanding animal welfare and the obligations that we accept when we choose to bring animals into our sphere of responsibility.

Not every animal is well and happy every day. Like humans they have good days and bad days. They fight within their social group, they get sick, and they are impacted by the weather and their physical environment. Modern understanding of animal welfare involves an assessment of how well an animal is coping with its environment.[2] Both the environment and the nature of the animal will have a significant impact on the welfare of the animal. Accepting that for an individual animal there are continuous variations in its situation, animal welfare looks at the ongoing condition of life for the animal, both physical and emotional.

The word *animal* includes insects and elephants and everything in between. Clearly the needs and welfare of different species are vastly different. In considering animal welfare, I will first discuss all animals in the generic sense and towards the end of this chapter deal with specific, complex cases. As with human ethics, many cases are covered in the general discussion. It is the marginal or unusual cases that give grounds for long and difficult deliberations. For zoos, the marginal cases are the large and/or complex animals.

Modern animal welfare considers both negative and positive welfare states. Negative welfare states examine the extent to which an animal is caused harm, usually considered in terms of pain or suffering. Positive welfare states consider whether the animal is happy, satisfied or fulfilled.

The terms welfare and wellbeing are often interchanged. Simplistically, welfare is often used to refer to the absence of pain and suffering, but modern conceptions of animal welfare include the ability to express natural behaviours and to show a sense of wellbeing. As such, I will use the term welfare to include wellbeing.

The consideration of animal welfare in the context of zoos and captive settings allows for a level of simplification in the discussion about which animal species are morally considerable. It is usual to engage in a discussion with respect to capability when considering animal welfare. In the zoo context, duties and obligations result from the special relationships that have emerged from the entangled history, shared environment and vulnerability that arises when holding animals in captivity. Thus all the animals that are contained in zoos, insects and fish included, should be morally considerable.

The animal welfare obligations and duties that flow to those who choose to hold animals in captivity (particularly the duty that humans should not cause unnecessary harm to animals) do not extend to some obligation to prevent animals from harming other animals in the wild. Welfare claims are against moral agents and only consider the actions of humans. Of course if the animal-on-animal harm is a result of a human construct, such as dog fighting, the blame lies with the human, and the animal delivering the harm is merely an instrument of the human. Zoos must be careful of claiming that it is acceptable to harm animals in captivity because they would have been harmed in the wild, either by other animals or by environmental conditions.

Zoos are largely transparent when it comes to animal welfare. The core model of zoos requires that zoo animals are held on display and visitors are encouraged to look at the animals. Thus zoos provide significant visibility of the animals in their care. As a result of public interest in zoo operations, some zoos even display the holding facilities and veterinary facilities, further promoting visibility. However, zoos do

hold animals off-display for a variety of reasons. The lack of display is no grounds for poor facilities or poor treatment of animals, and care must be taken to ensure that off-display facilities are equivalent to on-display facilities. Increasingly, zoos are expanding transparency by providing access for visitors to their off-display facilities and support activities, such as veterinary hospitals.

Zoo research and experience have allowed for greatly improved animal welfare.[3] Early efforts are a reminder of the tragedies that can occur without knowledge. Even today the introduction of species new to zoos, particularly those species that are on the brink of extinction, poses challenges in understanding and securing the needs of the species.

Because so many people are interested in zoos and the levels of animal welfare that they provide, regional associations have developed codes of welfare and strive to help zoos improve their skills and practices. Some animal welfare organisations track and report on the welfare of animals in zoos. Poor animal welfare will lead to negative reputation, reduced visitor numbers and reduced funding. Thus zoos have a social, moral and economic interest in the welfare of their animals. The aspirations of zoos to preserve and ultimately secure wild species necessitate that natural behaviours and wildness are also retained, additional motivation for the delivery of positive animal welfare that includes choice and mental stimulation.

Zoos have an interest in displaying healthy animals with natural behaviours. To be an ethical zoo requires, at the very least, thinking and practices that constantly strive to improve animal welfare, taking advantage of advances in knowledge and understanding of animals.[4]

Over the last 10 years I have visited over 200 zoos. In my mind I separate the well-run from the bad based on the way that they care for their animals. I have seen fancy, rich zoos with poor animal welfare and I have seen basic, humble roadside attractions with excellent animal welfare. The difference is in the attitude, knowledge, understanding and creativity of the people who hold the duty to care for the animals.

The best zoos are driven to constantly improve the welfare of the animals in their care. They focus on a range of interventions that enable the physical, social and evolutionary needs of their animals to be

met. They constantly improve enclosures, enrichment programs, conditioning and nutrition to provide the stimulation and environment that will allow for a life as close as possible to natural. They post reminders to all staff of the responsibilities that zoos hold to the animals in their care. Good staff believe that they should never be complacent or satisfied by the care they deliver to the animals they are responsible for. Codes of ethics, minimum standards and laws are the starting point for good animal welfare. Constant improvement and attention to the needs of individual animals ensures that animals can thrive.

Unfortunately, some zoos fail to deliver high standards of animal welfare. Many reasons emerge – inadequate funds, inadequate knowledge or inadequate clarity concerning their responsibilities. In the worst cases it seems that the staff just don't care.

Animal welfare is the foundation of ethical zoo operations. Well-run modern zoos understand that there are still major goals to be reached in improving animal welfare, such as disease prevention and treatment, increasing breeding success, solving the problems of surplus animals, and creating better, more natural habitats to improve the social and daily lives of the animals. Well-run modern zoos understand that they can only spread conservation messages if they display active, healthy, reproductive animals in natural settings. Well-run modern zoos should not rest in their quest for better and better animal welfare. Understanding the importance of animal welfare, zoos need to adapt their selection of species, accepting that some species will never do well in zoos.

Current conception of animal welfare

Animal welfare refers to the physical and mental health of animals. When we talk of welfare we are referring to how well an animal is coping with the environment within which it lives, and how the environment, particularly an artificially constructed environment, is meeting the physical and emotional needs of the animal.

Welfare can be considered to operate along a continuum, with an individual moving between good and bad welfare states at different times. Good animal welfare tries to keep an individual towards the

good end of the scale, while bad welfare is overly skewed to the other end of the scale. Less bad does not necessarily equate to good welfare, and less good welfare is not necessarily bad. In addition, we can consider individual actions that create a good or bad welfare experience, in an otherwise uniformly good or bad life. For example, an animal may live its whole life in a natural state with good welfare, only to be killed in an inhumane way.

Considering the definition that welfare means how an animal is coping with the environment, we understand that this is a judgement on the internal state of the individual. The relationship between the individual and its environment manifests as an internal state, typically called welfare. For animals, behaviour and physical condition have become proxy indicators of welfare. Behaviours and physical responses are symptoms of animal welfare that provide indicators of the internal state of the animal.

While the assessment of the internal state of an individual may be desirable, it is pragmatically just not possible to consider every chicken in a chicken farm as an individual. For large-scale consideration of animal welfare, the Five Freedoms model indicates the environmental factors that must be provided by those who hold animals if they are to increase the probability of delivering good welfare. The five freedoms are: freedom from hunger and thirst; freedom from discomfort; freedom from pain, injury or disease; freedom to express natural behaviours; and freedom from fear and distress.

The five freedoms are a combination of factors that will plausibly deliver a life with good welfare. Understanding that welfare is an internal state, there is no guarantee of happiness and fulfilment in an environment that meets the five freedoms. We all know of people with lives of privilege who do not cope with their environment and thus experience poor welfare, and people in poverty who are happy or in good welfare. Despite the obvious exceptions, meeting the five freedoms is a good way of providing an environment that should deliver good welfare for the majority of animals.

It is argued that the Five Freedoms model is simplistic and provides a sense that it may be possible for animals to live without certain

negative stimulus. The full elimination of hunger and thirst, for example, is not realistic, because at certain times of day animals will experience hunger or thirst and such experience will motivate them to eat or drink. Rather, the five freedoms are used to guide the husbandry practices that address the various freedoms. Thus freedom from thirst drives a need to provide adequate drinking water.

To meet the five freedoms across a wide range of species requires research, observation and detailed understanding of both the species and the individual. A simple aspect like correct diet requires significant attention, an understanding of the chemical and nutritional make-up of a wild diet, including the changes between seasons, and innovation to meet these criteria in the provision of manufactured foods within the confines of a city.

New Zealand academic David Mellor has advanced the understanding of animal welfare through extensive research to find ways of improving our assessment of the internal states of animals and has developed a Five Domain model to explain the internal body conditions and external environmental conditions that give rise to various subjective experiences.[5] The model recognises that animal welfare is a state within an animal and represents the net outcome of all negative and positive subjective experiences (affects) that an animal may have at any particular time. While the model acknowledges that direct measure of subjective experiences is not possible, it does provide an indication of what the subjective experiences are likely to be, based upon detailed knowledge of physical/functional processes within the body. Importantly, the model identifies the internal body conditions and external environmental circumstances that give rise to such subjective experiences.[6]

Once the inputs and the cognition of the animals are understood, the welfare of an individual animal can be measured on a scale of good to bad. Objectivity is plausible in measuring discrete variables which, once analysed, may indicate the animal's likely experience. The model that Mellor developed looks at five domains of potential welfare, namely nutritional, environmental, health, behaviour and mental states. The first four physical domains lead to the fifth domain, mental state. The Five Domain model allows for a sophisticated approach to

understanding the internal state of an individual animal and the actions that animal managers should undertake in an integrated manner to impact on the internal body conditions and external environmental circumstances.[7] Positive affective experiences in the domains will lead to positive welfare states. While accepting that negative affective states may occur, and may be necessary for survival, it is desirable to increase positive welfare states and reduce negative welfare states.

Modern conceptions of animal welfare are complex, as they concern the relationship between an individual and its environment, which is hard to determine. Thus we are dependent on the observation of physical condition and behaviour to interpret the welfare of an animal. Over time, humans have determined that animals have a wide range of capabilities, behaviours and needs. For many species there is a good knowledge of natural behaviours and the factors needed for success; for others, ignorance prevails.

While science has provided a good grounding to understand the elements of animal welfare and the ways to understand and deliver good welfare, the importance of animal welfare is founded on philosophical principles. A good understanding of these principles of animal welfare is useful to guide future efforts to provide good animal welfare.

Pain and suffering

Philosopher Jeremy Bentham set the scene for animal welfare when he proclaimed in his *Introduction to the Principles of Morals and Legislation* in 1789, 'it matters not if they can think – but can they suffer'.[8] In that single sentence an ethic for animals was born that spans more than two centuries. Today it is uncontested that some animals can feel pain and can suffer as a result, and that this is morally considerable.[9] Beyond pain we can include other contributors to suffering: extremes of breathlessness, thirst, hunger, nausea, dizziness, debility, weakness and sickness, which are mainly generated internally, and anxiety, fear, frustration, anger, helplessness, loneliness and boredom, which are mainly associated with the animal's cognitive assessment of its external circumstances.[10] Moreover, the presence or absence of such subjective experiences may be assessed both physiologically and behaviourally.

Societies for the prevention of cruelty have been in existence for over 200 years. At their core is the humane principle to prevent needless pain and suffering. Most countries have laws against knowingly and deliberately causing excessive pain or suffering to animals.

Humans can recognise suffering in other mammals, birds and many other animals. Interestingly, in this context, the human brain has the dual capacity both to recognise suffering caused to animals by humans and to contrive reasoning to support continuing to act in ways that cause suffering. For example, based on the provision of some important outcome we seek to justify or condone an act we would not condone on people, ranging from the provision of cheap protein to life-saving medical research. The long-lasting influence on animal-based science of René Descartes' premise that animals are just a form of machine without the ability to feel or suffer (automata) appears difficult, even impossible, to comprehend by the standards of today.[11] Nevertheless, a form of reasoning that was thought to be plausible at the time was involved. Today, however, it seems some humans may act badly towards animals not from any defensible principle or need but because they can.

The humane treatment principle

At first glance the welfare ethic seems simple enough; the humane treatment principle[12] states that to cause unnecessary pain and suffering to animals is wrong. However, there is nothing simple about the foundation, interpretation and implications of this principle. The humane treatment principle emerges from wide-ranging debates on animal ethics. The source attributed to the rightness of the action and the consequences that flow from the principle provide rich material for debate and argument.

With little effort we can find many versions of this principle advocated by many philosophers. They may be based on different schools of thought or different justification, but pragmatically they all come back to the same thing. Over time, the principle has become refined and the base more logically defensible. Early arguments drew on God and Man's superiority, while modern writers draw on the inherent value of animals. Yet they all distil to the same point, that animals can suffer and such suffering is morally considerable.

Kant, writing in the late 1700s, believed that humans have no direct duties to animals. 'Animals are not self conscious and are there merely as a means to an end. That end is man.'[13] But he does hold the way that animals are treated should reflect an individual's indirect duty to mankind. He holds that people should practise kindness to animals, as those that are cruel to animals become hard in their dealings with other people. He defends necessary cruelty in advancing a person's ends, but warns that 'cruelty for sport cannot be justified'.

In 1829 William Hamilton Drummond wrote of the rights of animals and people's obligations to treat them humanely.[14] In a lecture to the members of the Society for the Prevention of Cruelty to Animals, he talks of the fact that our wants bring us into contact with many species of creatures, and in our interactions with other animals withholding benevolence will deprive us of the 'most delightful enjoyment'. He finds that appreciation and enjoyment of animals is inherent in our nature as humans and part of God's design. To lack such sentiment is to lack a critical virtue. 'Narrow and degenerate minds think that the affairs of nature pertain not to them.' He knows and advocates that 'inferior animals have passions, feelings and sensibilities'. For Drummond, the wrongness of unnecessary harm flows from God's will. 'God did not make such beauty for man to destroy.'[15]

Regan[16] and Francione[17] hold that welfare is not enough and that the inherent value of an animal also deserves consideration (which will be discussed in later chapters), but they both stress that animals are the kinds of beings that can suffer or be harmed and that such suffering is morally considerable.

Peter Singer is widely considered the founder of the modern animal welfare movement with his work *Animal Liberation*, first published in 1975. Like Bentham, Singer bases his call for the consideration of animal suffering on animals' capacity to suffer. In an elegant and accessible argument, Singer drew attention to the multitude of ways that humans cause suffering in animals.

Exchanges between Fox, Regan and Singer in 1978 clarified the differences in the consideration of animals and humans. Fox[18] is a strong critic of animal liberation and rights but he concedes 'that animals have interests, in the sense that they are capable of distinguishing

between states of consciousness which are painful and those that are pleasurable or accompany physical wellbeing, and that they seek the latter and avoid the former as much as possible'. He goes on to state that 'We may and ought to be concerned about the welfare of animals and their present exploitation by man because they are sentient beings.' He holds that 'undoubtedly animals should not be maltreated. They should not be made to suffer needlessly or excessively.' Fox believes that this provision should be enough to prevent the excesses of animal use without recourse to the allocation of rights.

In her 2010 book *Animal Ethics in Context*, Claire Palmer[19] states that once we accept that animals have moral status and that we can have direct duties to them, then the most obvious duty that flows is not to harm them. She shows that all capacity-orientated ethics share this view, although various authors, such as Fox, Regan and Singer, disagree on what constitutes harm and what human benefits can override the harm. For Palmer, all versions of animal obligations hold 'that there is at least a prima facie duty not to harm animals in any context'.[20]

While the least contested principle in animal ethics is the prohibition on causing unnecessary pain and suffering, the simplicity of the principle belies the complexity of the interpretation and implications of the principle. The humane treatment principle consists of several critical parts that are subject to ongoing debate and argument. The holding of animals in zoos creates a specific context within which the humane principle can be examined.

Necessity

While there is a debate on whether zoos are morally permissible or necessary in their entirety, it is not useful to the discussion of animal welfare in zoos to spend time on this premise.

More important is a discussion on whether inflicting pain and suffering on animals, in an ongoing and institutionalised manner, is a necessary or essential part of zoo operations. The zoo model does not require nor necessitate pain and suffering of animals as a core element. Knowledge of the needs and behaviours of animals of each species has developed to the point that there are ways to hold and display many animals without creating suffering. Animals of certain species are more

challenging than others, requiring greater resources or skills. Certain zoo practices have the potential to cause pain and suffering, such as acquisition of animals, containment, training methodology and disposal of animals. However, careful consideration can remove most pain and suffering for the majority of animals.

Certain events, for example birth and domination challenges, are painful and are a necessary part of life; this pain is considered necessary and in some cases as desirable. Veterinary procedures may, by their very nature, inflict pain. While much veterinary pain can be minimised through anaesthetics and drugs, a certain amount of pain is unavoidable in the treatment of animals and may even be desirable to indicate illness or recovery. A well-run zoo ensures veterinary care is available to minimise unnecessary pain caused by disease and injury. In some cases euthanasia is the most appropriate way to terminate pain and suffering.

Animals

The term *animal* should include all animals held in a zoo collection, including invertebrates and food animals. There is no reason for trying to draw a line at some point, either arbitrary or defensible, that minimises the obligations of zoo professionals. By keeping animals in a relationship of vulnerability and dependence, zoos create duties for the care of the animals. The fact that an animal is part of a zoo collection is enough to warrant that the wellbeing of that animal is morally significant. If a facility is unable to ensure the wellbeing of an animal, it should not hold that animal.

Zoo animals are not wild in the sense that all parts of their life are controlled and manipulated by humans. Their breeding, food and even social structures are human constructs, along with their environment. Most modern zoos breed animals for display as well as for conservation outcomes. It is most unusual to secure display animals from the wild. Thus while zoos display animals of species that have not been domesticated, the individuals on display are seldom wild in themselves. Because animal welfare derives from the duty of care, the wild or domestic nature of zoo animals is only relevant to the extent that it complicates the delivery of their welfare needs.

Pain

Pain has an evolutionary function and the ability to feel pain is well accepted as a faculty of all animals; even jellyfish will move away from a pain stimulus. The discomfort that is experienced by any animal in pain is obvious; they may vocalise and they strive to move away from the pain. Pain and physical injury tend to be linked, and it is clear that an injured animal experiences pain. Equally, the effects of beating or physical punishment can be recognised as pain.

Pain is part of many day-to-day undertakings. In the context of the humane principle, ongoing and debilitating pain should be minimised or prevented. While short-term pain such as caused by disease or injury may occur, this should be minimised with medication and treatment. The New South Wales Prevention of Cruelty Act 1979 (part 2 section 5 (3) b states that 'A person in charge of an animal shall not fail at any time … where pain is being inflicted upon the animal, to take such reasonable steps as are necessary to alleviate the pain.'[21] We understand that actions may cause pain, and wherever possible such pain needs to be addressed.

Suffering

Suffering is a more complex topic than pain and is often harder to recognise. Emotional suffering may include fear, frustration, boredom, isolation-induced loneliness or depression and other negative experiences.[22] For many species, particularly mammals, some suffering can be identified and measured through biological functioning (such as cortisol levels) and behaviour patterns. With other species, such as insects, where responses are less easily recognised, those tasked with their care should apply common sense and precaution to avoid creating situations that may conceivably result in suffering.

It is argued by Bob Bermond that suffering requires reflection;[23] however, I disagree. Suffering is experienced at many levels and in many ways. For many species there is little evidence of reflective consciousness, yet they display indicators of fear, boredom, loneliness and anxiety.

Recent studies in animal cognition have questioned many beliefs, with research in cognition ranging from concept formulation in pigeons[24] to limited social cognition in the spotted hyena.[25] The more

research that is done, the more we know of the complexity of animal minds. Self-awareness, thought to be the domain of humans alone, has been shown in elephants, primates and some birds.[26] As more intricate measures and understandings are developed, we can expect to find out more about the cognitive abilities of animals. The impact of cognitive studies on our understanding of suffering will be significant.

While we may not know exactly the nature and extent of animal suffering, we do know enough to assume that they can and do suffer. In considering potential harms and related suffering in captive animals, zoos should be aware of the ability of animals to be fearful, bored, lonely and distressed.

The most universally acknowledged obligation to living creatures is the avoidance of unnecessary pain and suffering. For animals of many species, their life in human care may offer protection from the physical pain and suffering that they may experience in the wild. They are protected from predation, hunting and disease. Yet it seems that something is missing. The elimination of pain and suffering does not adequately address the need of a living creature to thrive; what is still missing are the things that bring pleasure and satisfaction, the things that make life good.

The self-actualisation of animals

Abraham Maslow identified five basic needs that humans have: physiological, safety, love, esteem, and self-actualisation.[27] For animals, the first two needs are major determinants of physical pain and suffering. But this just does not seem enough. It is possible to consider the higher order needs and their importance in terms of positive animal welfare states. Esteem can be considered as relevant to animals that live in social groupings with dominance hierarchies. Increased status brings advantages in terms of access to resources and mating. In many species, animals with low status have been shown to have higher distress levels and to fare worse than dominant animals.

To fully satisfy an animal or allow them to self-actualise would be to facilitate them being able to act in ways they have evolved to act. Normally this would mean allowing them to live in the niche they have

evolved to fill. When animals are relocated into a human-constructed environment, self-actualisation means ensuring they are able to exercise natural behaviours.

Since Darwin provided a mechanism to understand evolution,[28] we have become aware that animals possess certain traits and characteristics that allow them to succeed in a specific evolutionary niche. Animals of a given species behave in ways that increase their reproductive and survival rates. To deny animals the acts and behaviours that are part of their nature is to deny them self-actualisation. In the words of Maslow, 'Even if all these needs are satisfied, we may still often (if not always) expect that a new discontent and restlessness will soon develop, unless the individual is doing what he is fitted for'.[29] We can postulate that animals, like humans, have higher order motivations that motivate them to risk fundamental motivations such as safety and security. Animals will risk injury and even death to challenge for dominance in a group, risking pain and bodily integrity for increased status and esteem, securing the benefits that status facilitates. Frans De Waal observed the lengths to which male chimpanzees planned, collaborated and even fought to change their status.[30] Animals will migrate large distances, at considerable risk, as part of their nature. Migratory birds do not choose or desire to migrate; it is part of their nature and migrating is doing what they are 'fitted for'.

Humans are motivated by the desire to achieve and maintain the various conditions that support the satisfactions of Maslow's needs. In caring for animals in captivity, humans should provide the conditions that animals of given species require to meet their nature. Within the human construct of the zoo, keepers are responsible for the environment, social situation and motivations of the animals. They can observe behaviours to assess their success in achieving the satisfaction of the needs of the animals.

Any behaviour can be understood as a channel through which many needs may be expressed or satisfied simultaneously. Typically an act has more than one motivation.[31] Motivation is not the same as behaviour; it is one determinant of behaviour. 'While behaviour is almost always motivated, it is also almost always biologically, culturally

and situationally determined as well.'[32] Thus, interpreting behaviours as a proxy for feelings and wellbeing needs a consideration of individual, species, group and environmental factors.

It seems that we should consider animals in their own terms when we talk of their welfare. To meet welfare needs fully, we must respect what animals are. Most birds fly; to hold and use them in a way that denies flight seems to deny their welfare, even if they are in no pain and do not suffer. Some self-actualisation needs are more challenging; for example creating the environment where prey animals are forced to flee from predators to fulfil their destiny of being prey, or alternatively enabling predators to hunt live prey without causing pain and suffering to the prey.

Animal welfare in zoos

Good levels of animal welfare are the foundation of ethical zoo operations. Zoos by their very nature create a relationship of vulnerability and dependence in zoo animals. Thus it is imperative that zoos create environments where animals can thrive and live lives that are predominantly good. It is no simple matter to provide good, supportive and engaging environments for thousands of individual animals, with different histories, personalities and requirements, but it is the obligation that zoo keepers and staff accept when they choose to hold animals in zoos.

Many animals can be kept in zoos in a state of good welfare. Robert Garner discusses the range of quality and type of zoo operations and how this complicates the arguments for a blanket condemnation of zoos. 'The very best zoos provide environments that maximise the chances of animals being able to perform their natural behaviours.' While it is hard to meet the needs of large and social mammals, 'the needs of other, usually smaller species however are easier to meet'.[33] Georgia Mason talks of zoos being a haven for some species and a prison for others; species that thrive include ring-tailed lemurs and lorikeets.[34]

The modern conception of animal welfare is the extent to which an animal is coping with its environment. Unlike almost all farming and wild animal management, zoos deal with individual animals. Thus

while zoos are well advised to start with providing environments that meet the physical, health and behavioural needs of their animals, zoos should also spend time and resources on understanding the internal welfare state of individual animals.

Conditioning animals to live in zoos is a complex undertaking. Many zoo professionals have written entertaining and engaging accounts of their experiences with animals. Most of them show the complexities of different animals and different situations. The nature of zoos is that they hold animals in spaces smaller than their natural ranges, close to the most dangerous threat on the planet – humans. Significant care and energy is required to ensure that the display of animals is safe for both animals and humans. Animals born in captivity are generally more easily conditioned to captive life than those acquired from the wild.

Zoos are able to focus on interventions that may deliver the desired behaviours and physical state and that are indicative of good welfare, in innovative and unusual ways. For example, excessive fear is one indicator that an animal may not be coping with its environment. One solution is to remove the animal from the fear stimulus; an alternative solution is to condition that animal in such a way that the object of fear is no longer perceived as such by the animals. For zoo animals, a good way of reducing fear of humans is hand-raising or positive conditioning. To leave an animal snarling and spitting in a corner in fear, as this is a 'natural response' to humans, is to misunderstand good welfare. The behaviour should only be a proxy for the internal state; good welfare reflects happy, confident animals coping with their environments. Thus care must be taken in slavishly applying natural behaviours as proxy for good welfare, where common sense can provide an alternative.

Much of the current philosophy of zoo animal welfare can be attributed to Heini Hediger's[35] assertion that animal welfare should be judged by the conditions and behaviours of animals in the wild. Heini Hediger and more recent authors like David Hancocks[36] have stressed the need to create enclosures and facilities that reflect wild environments (naturalistic enclosures), thus enabling behaviours that would be evidenced in the native habitat (natural behaviours). Within the

constraints of the zoo construct and our limited ability to perceive the complexity with which an animal experiences its native environment, naturalistic zoo enclosures are a simplistic representation of the habitat or range state of an animal. Yet there is no doubt that naturalistic enclosures with appropriate territory, substrates and terrain are more desirable than cramped, barren spaces.

Zoos should strive to create environments that allow animals to behave in ways that are consistent with or analogous to their native environments, while enabling them to experience good internal states while in captivity. Climbing poles and sophisticated pulley systems allow tigers to climb to secure their food, mimicking a wild behaviour. Monarto Zoo, in South Australia, is one of many zoos that provide a lure for their cheetah to chase, allowing these big cats the opportunity to stretch their legs in pursuit of a fake rabbit.[37]

The simplification that natural conditions are a proxy for good welfare ignores the fact that many animals experience very poor welfare in nature and the wild. Droughts, disease and predation are all poor welfare situations that may result in pain and suffering. Death and extinction of species may be seen as the ultimate form of not coping with their environment. While fear, pain and suffering are natural states, they are not considered positive welfare states, and thus it is undesirable to create the environments where natural fear, anxiety, pain or suffering are replicated.

Authors such as McManamon, Maple and Stevens,[38] and Bostock[39] provide insights into the ways that animal welfare is manifest and measured in zoos. Reinforcing the above discussions, these accounts talk of animal welfare as the 'exhibition of species typical behaviour, including breeding behaviour and a lack of abnormal behaviour and good physical health'.

Pain and suffering in zoos

The first obligation for ethical zoos is the removal of all unnecessary pain and suffering. It is plausible that animals can be held in captive conditions without unnecessary pain and suffering. Animals born and raised in captivity can become acclimatised to living in close proximity

to humans. Veterinary care is made available to limit the pain of disease or injury. Separation from aggressive conspecifics will limit harm from in-group aggression. Prey species are protected from the pain and stress of being hunted and killed. Predators are fed without the risk of hunting injuries. Common sense, good governance and science need to work together to eliminate pain and suffering.

Zoos have the advantage of caring for small numbers of animals in close proximity such that the physical condition, behaviours and personality of most individuals can be known. While the individuals in large flocks, herds and schools are harder to monitor on an individual level, there can be close scrutiny of the group. Thus a zoo that is intent on the elimination of all unnecessary pain and suffering needs to invest in science-based decision making, develop clear definitions of pain and suffering, train staff to be vigilant for these symptoms, employ good veterinary services and systematically remove the causes of the pain and suffering. Clear intent and strategic intervention throughout the organisation will no doubt provide the circumstances where no animals need to suffer unnecessarily in a zoo.

Thriving in zoos

The second obligation for ethical zoos is to provide an environment in which animals can thrive. The best proxy we have for self-determination in animals is the display of a range of natural behaviours. While eliminating obvious pain and suffering is relatively easy, providing the environment and stimulation to allow natural behaviours is more challenging.

It has taken time for zoos to understand that animals, like humans, have motivations for such things as esteem and self-actualisation. Animals brought from the wild into early zoos would have experienced low satisfaction of base needs, as they would have been fearful, stressed and alienated. It would have been unlikely to see behaviours consistent with the satisfaction of higher needs in animals struggling to adapt to such a foreign environment. Equally, animals in the wild are mostly distressed when approached by humans. Their reactions would display basic survival tactics, seldom displaying natural behaviours.

Once zoos had learned how to hold and breed animals in captivity, without causing pain, suffering and death, they began to identify that many species have higher order needs. Well-run modern zoos now understand that animals can strive for social acceptance, status and certain species-specific opportunities. Evolution and adaption have resulted in a wide array of species, each with a unique set of requirements for their wellbeing. Chickens desire dirt to scratch in and ferrets desire water to swim in. Extensive observations have identified the things that motivate animals and the extents to which they will go to obtain these things.

The field of animal enrichment has emerged from the recognition that animals can become bored, lethargic, distressed and destructive when they are not afforded the opportunities to exercise their natural behaviours. Animal behaviourists study abnormal behaviours and devise interventions to enhance life within the confines of an artificial habitat. Many primate houses are equipped with television sets to entertain the great apes after hours.

Animals of some species adapt easily to containment, largely when the space is sufficient for a functioning social group and provides opportunities for natural behaviour. For example, meerkats have been shown to ignore the influence of human visitors and display typical behaviours. However, this is a complex field and much research is still needed to truly meet the environmental and behavioural needs of zoo animals.

Enclosures are the habitat that a captive animal occupies. Significant work and ongoing research is required to ensure that the habitat is able to meet the needs of the animals to the extent that they are able to live a relatively natural life. A good starting point is naturalistic habitats, containing natural substrate and furnishings.[40] For many species, zoos are unable to provide the territorial space that an animal would occupy in the wild. Foraging and hunting strategies are important to animals and as far as possible zoos should strive to replicate or facilitate these strategies. 'Nature assuredly is the norm. It is the yardstick to assess the quality of life for zoo animals and the quality of experience for zoo visitors.'[41]

With sufficient space, animals can be held in near-natural circumstances. Sanctuaries and open-range zoos allow for large herds of animals, including mixed species. Animals move freely within large enclosures. Some zoo animals, such as peacocks, roam freely, using the full zoo grounds as their habitat. In many cases the wild is limited, as remnant fragments are all that is left of primary habitat. In these cases wild animals live lives constrained by boundaries and fences: the difference in scale is the only difference; they are seldom as free as we imagine. In addition, many animals have small territories bounded by competition, not by fences. In these cases it is possible for zoos to provide space that is similar in size and complexity to the natural territory of the species.

The holding of animals in natural social groupings is one of the most critical provisions for good welfare. For zoos this is both a challenge and a change in strategic collection management. Early zoos wanted to show the full scope of animal diversity. Animal collections aimed to display as many species as possible, paired up male and female, in a live tableau of God's magnificence – a living Noah's ark. A lack of knowledge and opportunity added to the problem, with limited awareness of what natural groupings comprised. We now know better. Zoos must choose which species to display based on their ability to hold appropriate groups. Animals of many species live in large complex groups with movements between groups happening at puberty when offspring disperse. Well-run zoos can replicate this process, thus ensuring both genetic fitness and group dynamics.

Many tactics are available to facilitate zoos' holding of animals in appropriate social groupings. Large aviaries allow for flight and often contain mixed species. Antelope species adapt quickly to large paddocks and seem as much at home as cows or sheep. Many species are solitary in the wild, only coming together to mate, and can be held singly in captivity without risking social isolation. Small animals can be held in large social groups, even allowing for multiple groups within one enclosure.

Breeding is a fundamental motivator of all animals. The life cycle of breeding, birthing and raising young is an engaging and satisfying

behaviour for many animals. For zoos, breeding can be problematic as the skills and care provided to animals may result in high survival rates and animals of boom species can quickly breed to a point where overcrowding compromises welfare. Other species do not breed easily in captivity and invasive procedures must be undertaken to secure breeding. Maintaining genetic fitness is challenging, and groups must often be split to ensure that related individuals do not breed. Aggression between males, as they contest breeding rights, can result in fights and injury. Preventing breeding may require ongoing drugs, surgery and isolation. Considering that zoos should strive to allow animals a natural life, the removal of breeding opportunity may diminish the quality of that life. Intelligent and sympathetic approaches are required to address this complex process.

Well-run zoos strive to mimic feeding behaviours in the wild. Seeds and nuts are spread through beds of straw or wood chips to encourage foraging behaviours. Leaves and branches are provided to allow for browsing. Full-carcass feeds allow for variety and the challenges of removing fur and feathers. While not an exact replica of the wild, well-run zoos are focusing on how to facilitate natural behaviours and are allowing animals to enjoy their natural feeding behaviours. For many species this is successful, as can be seen in natural behaviours, successful mothering and physically healthy animals.

Following animal welfare ethics, acquisition and disposal of animals should also look to replicate natural conditions. For wild animals, the populations grow and shrink through several mechanisms: birth, death, dispersal and migrations between groups. Groups merge and split in line with availability of food and resources. Large groups form in times of plenty and thousands die in times of adversity. A contentious practice is to allow animals to breed and to kill the offspring at dispersal. This is a close replication of the natural process through which numbers are managed in the wild. The practice is arguably defensible in terms of animal welfare ethics as animals experience natural cycles during their lives and can be humanely killed at appropriate times.

Within zoos, humans have significant control over the life and death of animals, and the migrations of animals between groups. In

eliminating unnecessary pain and suffering we have eliminated many of the natural threats to animals and replaced them with human intervention. Predation and disease have been removed and are replaced with humane euthanasia. At some point longevity became one of the key proxies for good welfare. Our human fear of death has created an obsession with long life; we transfer these emotions to animals, believing that death is a poor welfare outcome. For many individuals, death is actually a good welfare outcome and provides relief from pain and suffering. If we are to be true to the humane principle, there must be effective use of euthanasia to eliminate pain and suffering. In the wild, predators are an effective way of reducing the sick, old and compromised individuals; in zoos humans must adopt this role.

Notwithstanding the ability to ensure good animal welfare, many zoos do not. In 2012, Born Free, the British-based zoo watchdog, undertook an assessment of 200 zoos in Europe. They found that 'Overall, the findings indicate that whilst national legislation includes the specific requirement of zoos to ensure their animals are kept in appropriate living conditions, requirements vary significantly, particularly concerning established species-specific minimum standards. Standards in the zoos are also varied. Zoos affiliated with zoo associations usually provide more appropriate conditions. Overall, wide-ranging and marine mammal species, in particular, were usually kept in conditions that did not meet the species' spatial, physical, psychological and behavioural needs. Environmental enrichment was found to be lacking in the majority of assessed enclosures within the 200 zoos.'[42]

Failure to provide good animal welfare does not mean that good animal welfare is not possible and achievable; it does mean that zoos must improve if they are to meet the fundamental requirements of ethical operations.

Containing complex animals

The Born Free European zoo assessment[43] singles out animals of species that travel large distances and marine mammals as not having their welfare needs met. This raises the question of identifying animals that are inappropriate for ethical zoos to hold. The animals that are most

challenging are large animals, living in large, complex, social groups with wide-ranging territories.

Wide-ranging species are especially challenging for zoos where space is limited.[44] Many species that hold large territories cover long distances every day. For example, elephants eat a significant amount and if they do not move they will denude an area. In a zoo setting, the food requirement can be provided, yet this alone is not enough to secure positive animal welfare. Elephants have evolved to live in big herds and travel large distances. Through a training program and sufficient space it is possible to hold herds of elephants and to facilitate their walking ~13 km per day, replicating the distance walked in the wild. Clearly, if the area is small, this distance will be covered by circling the enclosure, which is conceivably boring and monotonous. So to hold a herd of elephants and to give them the space to exercise and the complexity of activity to engage them is a challenge. While not impossible, the requirements to hold elephants correctly and ethically are costly and require significant space.

Large predators such as bears and big cats also hold large territories, based on their need for many food animals. Animals from some species, such as lions, adapt well to captive life; they spend a significant portion of their lives sleeping and only hunt sporadically. Others species, such as the naturally active and wide-ranging wolves and bears, tend to develop pacing behaviours and may not acclimatise to captive life.

Marine mammals are a concern for animal advocates. It is held that the aquatic environments that can be created and maintained in human control are woefully sparse for cetaceans. In many ways, the marine tanks of today are reminiscent of the holding facilities for large mammals in the past: sterile boxes surrounded on all sides by concrete.

The great apes also have complex needs; however, there are several facilities around the world that have mastered holding and displaying them. Great apes need space and diversity in their environment. Social groups vary; chimpanzees live in large groups while orang-utans are largely solitary. Holding great apes requires resources, innovation and creativity, but positive states can be achieved.

Birds fly great distances in the wild, in search of food or for seasonal migration. The conditions for natural behaviours of raptors, their

ability to soar far above the ground, are difficult to recreate in zoos. Some facilities may offer free flight demonstrations using birds conditioned to fly a set course or distance. Zoos offer a home to injured birds for whom flight is no longer possible. Aviaries are able to provide sufficient space for small birds to fly, but opportunities for large birds are limited.

Finally, there are animal species that are just not suited to captive life. They can be impacted by disease or virus when kept contained or, like the Cape clawless otter, will escape at every chance. Some animals, such as African pangolins, have such precise food requirements that their diets cannot be replicated, and attempts to hold them have failed.

The role of the modern zoo is not to create an ark with 'one of everything'. An ethical zoo will spend time to understand whether they are able to provide the space and resources to meet the needs of all their animals. In some cases, the ethical stance will be to secure space in the wild for these animals and not contain them in zoos. There are certainly enough animals that can thrive in containment to provide an amazing zoo experience without compromising animal welfare by holding animals that cannot.

Positive animal welfare in zoos

Animal welfare ethics appears at first glance to be simple. The ethics is largely uncontested and the humane principle that it is wrong for humans to cause unnecessary pain and suffering is widely accepted. But we find challenges. The humane principle is far from simple, as its application requires deep thinking on each and every word and the complexities of applying it to individual animals and unique situations. Further, the humane principle is limited in its application; at best it may prevent animal abuse but it falls well short of delivering good welfare.

The simplistic view of animal welfare suggests that it is wrong to keep animals in a zoo if the animals have a less pleasant life than they would have had in their native habitat. It is often possible to ensure that a captive life is no worse than a life in the wild. The removal of predators, human pressure and disease go a long way to improving the life of an individual animal. Rescue and rehabilitation animals would

not survive in the wild and are provided a safe haven in zoos. For animals born in zoos, the external world would be a harsh and unforgiving place, and if they were released their lives would be short and unpleasant.

The modern conception of animal welfare is concerned with the internal state of an animal. Good animal welfare supports positive animal welfare states by exceeding minimum standards, providing choice, variations and consideration of the preferences of individuals and their varied specific needs. Neutral animal welfare provides for all the basic requirements, while negative animal welfare does not adequately meet the requirements of individuals. Proxy indicators such as physical condition and behaviours are useful in assessing welfare. Pragmatic interventions, designed to provide for the physical, health and behavioural needs of the animals, are a good way to avoid the likelihood of negative animal welfare states. To really deliver good animal welfare involves the development of positive welfare states, which requires a good knowledge of the natural state of the species as well as the character of the individual animal.

Despite the complexities of animal welfare, there are no logical or pragmatic impediments to zoos providing environments that support high standards of animal welfare. Dedication, commitment and resources can ensure that animals experience good welfare and lives that are predominantly positive.

Animal welfare organisations have argued for ongoing, incremental improvements to animal welfare. Zoos have responded with steady progress in improving animal welfare. Papers are published and presented at conferences expanding the community of knowledge on animal welfare. Born Free proposes that improvements can be made in the short term through more training, detailed guidance and improved enforcement.[45] Critics, particularly the animal rights movement, argue that incremental changes will not bring about their desired outcomes, the closure of zoos.[46]

Welfare efforts and standards of zoos have increased significantly over the last 50 years. Victoria Melfi[47] identifies knowledge gaps that hinder the ability of zoos to deliver good welfare. She makes the point

that good welfare is often seen, erroneously, as the absence of bad welfare. Identification and monitoring is thus aimed at recognising bad welfare. Human assessment of welfare is limited by our anthropomorphic experiences. We do not know what it is to be a bat, so how can we possibly know what constitutes wellbeing for bats? We can only perceive within our limited experiential range. She argues for ongoing and expanded evidence-based animal management frameworks.

Considering ongoing discoveries in animal cognition, I believe that good animal welfare is not a destination but an ongoing, strategic commitment that ethical zoos should take very seriously. Good animal welfare is the foundation of ethical operations. Without good welfare, no higher benefits can be achieved. All zoos can improve their animal welfare, by setting their strategic vision, being clear on how welfare is measured and delivered, training staff and investing resources to constantly improve the welfare of the animals in their care. Zoos must share knowledge and skills so that the entire community of zoos can work together to improve animal welfare outcomes for all captive animals. Finally, zoos must weigh their competence to hold a particular species in captivity honestly.

Yet, even if all the requirements of good animal welfare are met, a doubt lingers if this is enough. The animal rights framework considers if there are rights beyond welfare that animals are owed and that may be compromised by captivity.

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5

Animal rights beyond welfare

> Animal Rights is a simple idea, at the most basic level, it means only that animals have the right to be treated with respect.[1]

Introduction

The position that animals should be entitled to some form of protection of their lives and liberty, irrespective of the impact on their welfare, is widely called animal rights theory, and is considered distinct from animal welfare theory. Bernard Rollin, quoted in Francione,[2] states that rights are 'moral notions that grow out of the respect for the individual. They build protective fences around the individual. They establish areas where the individual is entitled to be protected against the state and the majority, even when the price is paid by general welfare.'

In modern language we use the term 'rights' as shorthand for more complex discussions on the principles of moral duties and obligations. Rights are called on as a form of moral trump card in discussions of ethics and morality. In the media we hear of people protesting for their rights to freedom of speech, education or democracy. Abuses of rights result in consequences, with global courts mandated to rule on large-scale abuses of human rights.

For animals, the rights that people generally think of are welfare rights, believing that animals should be protected against actions that harm them physically or emotionally. In 1983 Tom Regan[3] sparked the birth of the animal rights movement with his book *The Case for Animal Rights*, in which he proposed that animals should have protection beyond the protection of their welfare interests.

Many writers have followed, expanding and enhancing the notion that animals require rights to protect them from use and exploitation. At some point the thought that animals have rights became entangled with the movement to stop the exploitation of animals, the argument being that once animals possessed certain rights they would, logically, not be used in ways that violate those rights.

The grounds for asserting rights for animals vary and no winning argument has emerged. The practical implications of rights for animals, for all who own animals (from pet owners to large-scale agricultural meat farming), have prevented the idea receiving mainstream acceptance.

Animal rights theory raises several important discussions for zoos. In this chapter I will consider the concept of rights, the appropriateness of their extension to animals and the application of the proposed rights for animals that go beyond welfare. In particular I will discuss the right to freedom from pain, suffering and torture, the right to life, the right to liberty and the right not to be owned. While zoos may argue that animals do not have rights in our prevailing economic and legal frameworks, they are well advised to understand the implications and foundations of the various rights advocated for animals.

Animal rights

The central issue here is to clarify whether or not animals are the kinds of beings that can have rights. Two main arguments are proposed to clarify who is eligible for rights, including children and animals.[4]

The first is the Will Theory of rights, which proposes that rights are linked to the ability to make conscious choices about actions, to be capable of weighing up options and taking rational and logical decisions. Rights provide a space within which individuals are permitted to make choices. It is generally held that according to the Will Theory neither children nor animals can hold rights, as they lack the required capacity to make moral choices. An alternative view is that it may be possible that children and animals could have rights, albeit ones that are exercised by trustees or representatives who would address the question of what a child or animal would decide if they were themselves able to do so.

The second argument is the Interest Theory, based on the logic that rights serve to protect important interests of individuals. It is argued that children and animals do have interests that should be protected by rights; the most commonly accepted is the interest in avoiding pain and suffering.

For humans there are different kinds of rights based on the underlying theory of rights: liberty rights (based in Will Theory), and welfare rights (based in Interest Theory). Liberty rights are rights of choice or self-determination, that is, the right to make choices (such as to vote, marry, practise religion or access education), whereas welfare rights protect important interests (such as life, avoiding suffering and having a positive welfare state).

Advocates for animal liberation and animal rights (Regan,[5] Francione[6] and Jameson[7]) propose that animals should, as a minimum, have rights to life, liberty and freedom from torture. They argue that to deny animals rights is to keep them in a state of vulnerability and dependence, with their welfare at the whim of humans. Gary Francione asserts that an increased occurrence of animal cruelty and abuse indicates that relying on the goodwill of humans is insufficient to protect animals.[8]

Other academics and philosophers deny this, believing that animals have no need for rights, as the interests that animals have in their welfare can be protected by other means (Fox,[9] Garner[10] and Cochrane[11]). The view that animals should not have rights, in the way that adult humans have rights, involves the following assertions: first, animals lack the capacities that qualify adult humans for the possession of rights; second, to talk of rights for animals misunderstands animals and their relationships with people, and would undermine the order of humans and animals in the world and lead to inability for humans to act or survive; third, the interests of animals can be assured in other ways.

An emerging view offers an alternative position, arguing for rights for animals that include some demanding and powerful rights, but do not include a right to be liberated.[12] In considering if animals should have a right to liberty, Cochrane proposes that it is only the morally important interests of animals that warrant protection. For example,

animals have an interest in obtaining appropriate nutrition to sustain life. If this interest can be met in captivity then there is no need for a right to liberty to meet this particular interest. By understanding the interests of animals we can identify which, if any, interests are frustrated by loss of liberty or even loss of life.

Animal rights based on the Will Theory of rights

Tom Regan is widely held to have first articulated the philosophical argument that many animals are sufficiently autonomous to have rights of will, and respectful treatment would necessitate limits on the use of animals. Regan states, 'it seems obviously true to me today that you don't justify overriding an animal's rights because others will benefit'.[13]

Regan puts forward the argument that animals make choices and act in ways that would indicate they possess a sufficient level of self-determination to take claims of rights based on Will Theory seriously. He argues that animals have preferences, desires and goals, which will be satisfied or achieved by acting in a certain way. For Regan, autonomous beings are those that have the ability to initiate actions in pursuit of their preferences and satisfy their own desires and needs. Regan does not believe that all animals have this capacity; thus he limits autonomy to only adult mammals.

When humans restrict a being's ability to act to fulfil their preferences, we impact their autonomy and we fail to treat them with respect. Regan argues that the principle of respect compels that we treat animals, which clearly have preferences, as autonomous and allow them to exercise their ability to fulfil their preferences; most directly by leaving them alone to live their lives uninterrupted or exploited by humans.

The Kantian view is that to respect an individual is to treat that individual as an end and not merely as a means.[14] This is exactly what Regan proposes; namely that animals and humans have a basic moral right to respectful treatment. 'Because other animals have a moral right to respectful treatment, we ought not to reduce their moral status to that of being useful means to our ends.'[15] However, Immanuel Kant viewed autonomy as linked to impartial, rational thought and the

ability to recognise and act on reason. Hence Kant demanded evidence of acting on reason as a requirement to be considered as an autonomous being. Kant denied that animals can be considered to act on reason.

Regan advances the argument that, while Kant's autonomy is relevant to the consideration of moral agents, it is too limiting in thinking about moral patients, those who may not have these capabilities.[16] Thus he advances a broader definition of autonomy, that of preference autonomy, according to which an individual that has preferences and can act to meet those preferences should be considered autonomous.

A moral right to respectful treatment puts limits on how an autonomous being may be treated. Individuals who possess this right may not be treated as a resource for others. While Regan accepts that humans are different, due to advanced cognitive, aesthetic, moral and spiritual capacities, he holds that this difference provides absolutely no basis for the exploitation of other animals.[17]

Regan does not advocate that animals should have the same rights as humans. Regan holds that it is the consideration given to animals that should be the same as the consideration given to humans, not the actual rights.[18] Equal consideration or respectful treatment does not mean that treatment must be identical.[19] When we consider the scope of rights that are logical and sensible, it will be important to understand the preferences and needs of the animals of each species independently.[20] The choices that humans make can be more complex than the choices we perceive animals to make. As such, it is logical to believe that will-based rights for animals would be different from will-based rights for humans.

The discussion of autonomy is especially interesting and challenging when we consider animals. We are limited in our understanding of the motivations and desires of animals because we can only call on observations of their behaviour. We can see animals exercising preferences all the time, from the self-limiting play behaviour of wolves[21] and complex social animals, to a domestic dog choosing where to sleep. The challenge is to distil what is truly a choice based on a proper understanding and deliberation of cause and effect or moral

consequences, and what is just the meeting of an immediate biological need or affective desire. The dog may respond to physical cues, 'I sleep in a spot that is warm and comfortable', or may exercise the choice to forgo comfort for a greater desire, 'If I lie here I can see the road and await my humans, even though it is cold and uncomfortable'. Dogs would not be credited with the human capacity to think rationally about an issue, weigh up options and to alter their behaviours to achieve preferences, for example, 'if I drag my bed to this location I can see the driveway and be comfortable.' Or further to weigh up the second-order motivation and consider desirability of wanting to wait for the humans.

There are different ways that claims about capacity, particularly choice, are made. While it is accepted that animals have some ability to make choices, defined by expressing preference, there is doubt that this is sufficient to meet the requirements of Will Theory and qualify for will-based rights. Young children have the ability to express interests and choices, but this is not currently considered sufficient for liberty rights such as voting, entering consensual contracts or freedom of movement. What is needed is more than being able to express or communicate a desire, but rather the competence to understand and appreciate the significant options facing one, together with the ability to make an independent choice on how to act.

With so many factors and little consensus on the absolute threshold for morally relevant autonomy, even among humans, we are challenged to identify which species should be considered morally autonomous. Some animals may satisfy some of the criteria, few will satisfy many of them, and many animals have not yet been shown to satisfy any.

Significant to discussions on autonomy is the concept of first- and second-order preferences. First-order preferences are driven by basic biological or emotional urges: hunger, avoidance of pain, desire to mate. Second-order preferences require the capacity to reflect upon first-order preferences and to have the capacity to change them.

The important preferences or choices reflected in animal behaviour, such as who to associate with, how to live, what to eat, when to partner and with whom, whether others should live or die, are at best consistent with first-order preferences. In many cases even these decisions are not the result of any obvious preference, rather one of opportunity or

stimulus and response. Choices of mate or food, for both free-living and captive animals, are often dictated within narrow bounds by the life cycle of the animal and available resources. Most preferences and behaviours, if not all, are driven by first-order needs or imperatives.

The choices that animals are competent to make are pragmatic and arise from limited sets of options. Few animals choose when to mate or fall pregnant. Females become fertile at some point, often linked to the most advantageous time to raise offspring and dictated by environmental cues. As soon as the females are fertile they emit strong physical or behavioural signals that males are drawn to. Neither the male nor the female acts from choice but is instead driven by some physical or biological imperative. By contrast, competent adult humans are expected to apply consideration and rational choice with respect to having children. Cases where respect and responsibility are ignored are considered abusive and likely to result in censure. It is meaningless to talk of rape in animals or hold an individual animal accountable for incest, as animals can neither consent nor withhold consent. Nature goes to great lengths to avoid incest by removing choice from the individuals in their life cycle. At the most extreme, all male antechinuses die at the end of the mating season, ensuring they never mate with their daughters.[22]

While animals have preferences and can make certain choices, these are not sufficient to be considered for rights of will. The autonomy that animals possess is not sufficient to meet the rigour of rights based on Will Theory, yet their preferences are still important in clarifying interests and desires. Providing choices to animals is important, albeit from a limited range of options, and is useful in informing a welfare approach to the treatment of animals.

It seems that animals have the ability to make choices that would advance their welfare or avoid negative welfare outcomes. It is less convincing to hold that the preference autonomy displayed by animals is sufficient to motivate rights based on Will Theory.

Animal rights based on the Interest Theory of rights

The Interest Theory of rights considers the interests of an individual, and bases rights on protecting the individual against others who would frustrate or deny those interests. Not all interests are subject to rights,

although basic human rights cover most of the important interests of humans, irrespective of capacity. While animals may not be considered as sufficiently autonomous to have freedom of will, they certainly can be seen to have morally relevant interests and desires that could and arguably should be protected by rights. When an interest is protected by a right, the interest may not be violated or ignored because others will benefit. Many human rights flow from this fundamental principle.

Noah Smith[23] proposes that interests can be considered in two ways: things that are in your interest, namely the things that are needed to thrive, and the things that you are interested in, your desires. Often the two types of interests overlap and you desire what you need. To prevent or limit these interests typically results in a diminished or negative experience. Sometimes what you desire is not actually good for you, in which case, while you may be frustrated, you will not be harmed when that desire is thwarted. In some cases what you desire may not be permissible as it conflicts with the rights of others. It is not necessary for an individual to know or understand their interests in order for their interest to be important.

The least contested interest of all animals is for them to live a life free from pain and suffering, commonly understood as welfare, and largely secured for animals though legislative provisions. The most extreme infringement of protection from pain and suffering is torture, understood as the intentional and ongoing infliction of pain or suffering.

Gary Francione[24] is a strong advocate of interest-based rights for animals. He proposes that moral significance is linked to sentience alone, understanding sentience as the capacity to feel pain and experience pleasure. Given that the principle of equal consideration of similar cases is a significant component of moral theory, he holds that we should give equal, moral consideration to sentient animals' interest in not suffering. Francione argues that two fundamental animal rights emerge from the serious consideration of animal interests: the right not to be property, and the right to life. Francione argues that the recognition that animals have an interest in not suffering the deprivation of their fundamental interests merely because it would benefit someone else is the basis for animal rights.

Stephen Bostock[25] is concerned by the notion that we may grant rights to animals but probably would not consider these rights as powerful enough to stop us using them, killing them or eating them. He proposes we should only use animals where there are at least no negative impacts and preferably where the use has real benefits for the animal. For example, prey species in zoos are protected from predation, provided with sufficient food and water and have their illnesses treated.

Serious consideration of rights for animals based on their interests, needs and desires could have impacts on human rights. Conflicting rights warrant careful consideration and debate. The lack of rights for animals means that most of the work on conflicting rights only considers conflicts between humans.

In determining the interest-based rights of animals that warrant consideration, the following argument is commonly used: human rights protect morally important human interests; animals also have morally important interests and thus animals should have rights to protect their morally important interests.

The similarity of animal interests and human interests is derived by asserting that some animals have capacities that are sufficiently similar to humans in morally important ways. Scientific research and animal studies look to evolution, similarities between brain and nervous system developments, and behavioural similarity to make the case that there are factual similarities between humans and animals. It is logical to assume that these resemblances produce similar interests; thus, it is argued, humans and animals are not different in ways that allow for different moral treatment. The argument continues that as animals are similar to humans in morally important ways, they should be entitled to morally similar treatment and protections.

The capacity to feel pain is largely uncontested and can be shown to be experienced by humans, all mammals, all birds, all fish, all reptiles and many invertebrates. However, the ability to feel pain can only be matched by an interest in not being hurt and a right to protection from pain and suffering, as articulated in welfare statutes. Those who want to argue that animals deserve consideration of rights beyond welfare must show animal capacity that is more complex than

a response to a pain or pleasure, and interests that are greater than physical security.

The search for morally relevant similarities between humans and animals that could plausibly warrant extension of interest rights has led to the search for sophisticated capacities in animals and a body of research, literature and discussion on the key attributes and capacities of animals and their importance in terms of interests, rights and protections. Those who argue that animals have sophisticated capacities draw on cognitive research and behavioural studies. Yet, they can only support this claim for a small group of species and even then the capacities are very different from those of a normal adult human.

The Great Ape Project[26] brought together a group of philosophers and writers who make the case that at the very least the great apes have mental capacities and emotional lives that warrant their inclusion in a community of equals with humans. As such, they request that the rights to life, liberty and freedom from torture be extended to the great apes. Over time other candidates have been identified and researched; dolphins, parrots and dogs to name a few. Similar Minds Theory[27] proposes that animals sufficiently similar to humans should not be considered merely sentient and have only their welfare interests protected; rather they should have access to the rights of personhood. Increasingly, a small selection of complex animals is being proposed as non-human persons, acknowledging the potential that they have moral interests that may limit their treatment. While there is some traction in these ideas for great apes and cetaceans, people generally hold that humans are different from most animals and should be treated differently.

In considering interest rights for animals two arguments are put forward. The first is that animals are sufficiently like humans, with language, sympathy, cognitive mental states and emotional lives, that they can be harmed in morally similar ways to humans when their interests are thwarted; thus the rights that humans enjoy should be extended to animals as part of a community of equals. At best this approach will include only a handful of species. The second approach is that animals have morally significant interests that can be impacted by human actions, and their rights should prevent humans from impacting on the morally important interests of animals.

In the last 100 years we have learned a lot about animals and what is in their interest if they are to thrive. Increasingly, we understand that animals have social, biological and affective interests and are able to indicate their interests and desires through preference selection. I accept the logic of the Interest Theory of rights for animals and will consider the extent to which morally important interests of animals can be harmed through human action, and if such impact is morally considerable.

Animal rights beyond welfare

Accepting that animals have interests that are morally relevant and that these interests warrant further consideration in terms of animal rights, I will consider the most important rights to have emerged from 30 years of animal rights discussions. The rights most widely proposed for animals are the right to freedom from pain and suffering, right to life, right to liberty, and the right not to be property. By considering each in turn we will consider the relevant interests and whether frustrating or limiting the interest creates sufficient harms to warrant protection through rights.

It is more valuable and practical to consider whether elephants, dolphins, great apes and lions should have rights than whether slugs and ants have rights. Yet, we should not be too quick to exclude simple species because research is constantly shedding more light on the capacities and interests of all kinds of animals. I use the term *complex animal* to denote the species that have, thus far, been seen to be the most sophisticated (great apes, elephants and dolphins), while *animal* still denotes all animals, including complex animals.

Right to freedom from pain and suffering

While we cannot know exactly how others experience pain, we do know that pain and suffering is a negative state for humans and one we choose to avoid. Causing pain either with intent or by accident has consequences. Humans have a right not to be harmed or caused pain, even if many others would benefit from that suffering. Many rights flow from a prohibition on inflicting pain and suffering on others and many laws act to prevent actions that would cause harm to other humans.

It is widely held that animals have the physical and mental capacity to feel pain and to suffer, if not exactly in the same way as humans, at least in a way that is recognisable, through their behaviours and physiological reaction, as similar to humans. It is also widely accepted that it is wrong to cause unnecessary pain and suffering to animals.

Thus we can see that interest-based rights for animals to be protected from pain and suffering can be defended based on either similarity to humans or protection of morally significant interests. The scope and extent of animal welfare was discussed in depth in Chapter 4. Not only is the prevention of pain considered important but also prevention of suffering, and to a large extent so is the provision of positive experiences.

Torture is the intentional, ongoing and sustained infliction of physical pain and suffering. Despite a good understanding of animals' welfare requirements and extensive animal welfare regulations, there remain many industries where animals suffer on an ongoing and sustained basis and to an extent that may be considered as torture. The most commonly cited example of torture, by animal advocates, is the treatment of animals in laboratories.[28] Animals that are used in product and safety testing are often excluded from animal welfare protection and may be deliberately harmed to test, for example, whether a dose of a chemical is lethal or the use of a cosmetic might cause superficial damage. Extending animal welfare protection to all animals, (pests, laboratories and agricultural) would require significant changes to current practices.

While great advances have been made in animal testing and invasive research, proponents of animal rights argue that the lack of rights for animals means that in a trade-off of the harms suffered by animals against benefits to people, even trivial benefits to people are used to justify extreme harms to animals. This seems *prima facie* wrong and a strong justification should be required. In Australia, the killing of native animals requires a permit. Increasingly, those seeking permits are being asked to provide a justification for the need to kill and asked to demonstrate that alternatives have been considered. The Royal Society for the Prevention of Cruelty to Animals in Australia suggests that culling of native animals should only be undertaken 'when proven necessary for the preservation and benefit of the species'.[29]

In line with animals' ability to suffer, based on sentience, it seems reasonable to prohibit pain, suffering and torture by humans.

Right to life

For Gary Francione,[30] an animal's right to life is based on the animal's interest in the continuation of its life. Francione holds that sentience is not an end in itself but a means to staying alive. Animals have pain sensations so they can avoid experiences that will threaten their lives. For pain to exist and for animals to react in ways that show pain, he holds there must be a mental experience that what is being felt is pain, the pain is happening to me and I prefer not to have this pain. Thus Francione links sentience and reaction to pain as showing sufficient self-awareness and interest in continued existence to warrant a right to life. As it is with humans, he argues that death is harmful for any sentient animal as it will result in the loss of opportunity for satisfaction.

The ability to experience pleasure indicates that there must be some value in the good or positive experiences that life facilitates. Animals have interests in many positive experiences, and to terminate their lives would prevent these.

Animal welfare proponents Jeremy Bentham and Peter Singer hold that animals do not have the same interest in continued existence that humans have, thus their death, if humane, is not an infringement of interest. They propose that if animals live moment-to-moment as a connection of current experiences there is no harm in their death as long as it is carried out in a humane way. Few animals have shown the complex cognitive abilities that are needed to make sense of death and to reflect on the harm that death creates.

Death is a powerful motivator and narrative for humans. We have constructed elaborate stories and religions to try to address our fear of death. Humans demonstrate a strong interest in continuity of life over a significant period of time. We bury our dead, believe in a human soul or an afterlife and develop stories to continue the existence of our lives after death. Culture and social life is full of examples of human concern with death and our fear of dying.

Are animals therefore sufficiently like humans to warrant rights that protect their interests in living?

In terms of desire to live, no animals have yet been shown to understand the continuity of life or show the fear and concern with death that humans display. They don't bury their dead, or comfort their young that there is life after death, or explain the death of another.

Animals of many species breed in huge numbers and invest little in each individual; it seems that death is part of their reproduction life history. For frogs, insects and many birds, as many as 95% of their offspring do not live to maturity. In these cases, it is hard to believe that the individual animals know and fear death.

Marsupials have evolved to carry their young in external pouches, facilitating the termination of an immature animal without cost or risk to the mother. In times of environmental stress, such as drought, the mother removes the offspring from the pouch and leaves it to die. With such an adaptive behaviour it seems that the death of young is not considered as harmful by the adult or to the adult.

Animals from complex species often invest significant time and resources in raising individuals; in these cases death may yet prove to be understood by these animals. There are some documented cases of animals showing grief and mourning the loss of a close companion. Jane Goodall[31] writes of a chimpanzee giving up his will to live following the death of his mother. He returns to the site of her passing, lies down and dies. 'Dependent as he was on his mother, it seemed that he had no will to survive without her.' Perhaps if we look hard enough we will find the proof that at least some animals understand death as different from loss of companionship.

Human fear of death means that the threat of loss of life is a powerful motivator. The universal human right to life acts to limit the ability to kill humans, which in turn limits the power to control humans through threat of death. We do not control animals through threats of death. It is the inability of even complex animals to understand the consequences of their actions that leave them vulnerable to conflict with humans. If elephants understood that it is prohibited to kill humans they would not be a threat and they could live alongside humans, but they do not.

While animals may not have a desire to live, understood as an interest in living, there is no doubt that living is in their interest. Without life animals cannot breed, eat, play, or do all the things that make their lives valuable. It is self-evident that a lack of life prevents all positive experiences.

We know that for humans our interest in life is found largely in the narrative of our lives. By living we find joy, pleasurable experiences and meaning. It is only when our lives are degraded to a point of extreme suffering that we might take our own lives.

How would we possibly compare the experiences that animals enjoy in living when we just don't know what it is like to be an animal? We romanticise the joy that a vulture feels soaring on thermal updrafts high above the earth, we see dolphins surfing in waves, seemingly joyful in their play behaviours, and humans understand at some level the joy of our companion animals, a cat purring on the bed or a dog gambolling in the park. The minds and emotions of so many animals are hidden to us, yet it seems that life is desirable to animals.

To terminate the life of a healthy, vital animal would violate their interest in living. As such, we are best served by assuming that the lives of animals are in their interest and should not be terminated readily.

Liberty

The loss of liberty is a way to punish people without resorting to killing them. The threat of prison and containment acts as a way of securing compliance, although the success of this is often debated. Loss of liberty is harmful for humans beyond pain and suffering. The removal of opportunities, social interactions and the ability to live a fulfilled life contribute to the harm of containment for humans.

Are animals sufficiently like humans for this to hold true for them?

The impact of captivity, containment and loss of freedom is an issue that attracts significant attention from animal rights proponents. Tom Regan[32] looks at the impact that captivity has on preference autonomy and the ability of animals to act in accordance with their interests and desires. To stop them doing what they prefer is to thwart their will and to cause frustration. To live well is to be able to satisfy

one's desires and interests. Thus Regan holds 'it is wrong, all other things being equal, to limit an individual's liberty'.[33]

The extent to which captivity or loss of freedom is important is the extent to which an individual is harmed by their inability to take action to meet their preferences. Humans are complex and have varied desires and preferences. The confinement of humans thus creates a substantial limitation on their ability to act in ways they may choose and is seen as a punishment or harm.

Parents often limit the freedom of movement or action of children without creating harm. While children are young it is possible to meet their needs in a small space, such as a play area. As they grow and develop more complex needs and desires, parents need to allow them more freedom. It is only once adulthood is achieved that humans have significant freedom of movement, but even this is not unconstrained. There are limits on access to dangerous places and in which country you may live.

Few animals live in places where there are no constraints to their movements. Many animals are highly territorial and act aggressively to individuals of their own species, limiting an individual's ability to move into or through their territory. National parks are fenced to protect and secure animals, thus acting as very large enclosures. Animals may be able to express all of their natural behaviours but they cannot migrate out of the park or choose to leave. Other areas may not be fenced but are surrounded by cultivated or human-occupied land, which creates an impenetrable barrier for animals. Many animals can be contained through feeding regimes and training. Although free to leave at any time they remain in the designated location, contained by their desire for free food, protection or some other advantage. Thus, pragmatically, most terrestrial animals now live in areas where their liberty is constrained to some extent.

The conception of animal freedom varies among philosophers. Christine Korsgaard[34] states that animals are not free in the way that humans are free. Our human freedom is grounded in the fact that our minds are self-conscious in a way that is essentially reflective. Reflective, rational thought enables humans to be free of our base instincts and to

make moral choices. Mary Midgley[35] talks of human freedom as being based on autonomy. Humans are capable of free choice, wanting it, and needing to have a say in their own destiny. Human freedom is not just outward physical freedom but the freedom of will. Alasdair Cochrane argues that freedom for animals is not so much about being in control of their lives as being able to pursue their biological interests or ends.[36]

The nature of the captive facility and its ability to provide animals with the opportunities to act to meet their needs and desires is significant to a discussion on the morality of keeping animals captive or limiting their freedom. It is conceivable that animals of many species are able to exercise a wide range of actions to meet their preferences for food, water, shelter and social stimulation within good captive facilities. Domesticated animals thrive in human care, having needs and desires that can be met reasonably easily. As discussed in Chapter 4, 'Animal welfare', animals can be kept in conditions where they experience ongoing, sustained positive animal welfare.

Animals generally have fewer preferences than humans, particularly where they have evolved into a specific niche. Thus, for many animals the range of foods and behaviours that they desire is limited. In the wild an animal's ability to satisfy its preferences is dictated by its habitat and the availability of those preferences. Elephants may desire to wallow in the mud, but in dry months there are no mud wallows available and thus that desire is thwarted by circumstance. In captivity many animals are able to exercise preferences that they could not satisfy in the wild. It is conceivable that captivity may be able to expand choices as many of the limitations to behaviour and preference can be removed.

In accepting animal rights based on interests, it would seem to me that it is morally permissible to contain an animal or limit its freedom if the individual experiences no harm. As discussed in Chapter 4, this is plausible for many species, but meeting the needs of some species may be more challenging. Holding an animal in captivity either in a large national park or as a pet at home creates duties and obligations regardless of animals having rights, based on their ability to experience welfare states.

Not to be considered property

Gary Francione[37] rejects the idea that animal welfare ethics can adequately protect the interests of animals as long as animals are used by, and remain property of, humans, as the fact that animals are considered as human property prohibits the equal consideration of their interests. The interest of humans in not being property of others is protected in human rights.

It follows for Francione that the most fundamental right for animals is the right not to be treated as property. He holds that it is a mistake to believe that equal consideration can be applied to animals while they remain property, as he believes the owner's interests have the potential to override the property's interests. Rules related to use and treatment are unlikely to completely protect animal interests because limitations on treatment are largely designed to protect the extrinsic value of the property.

When considering the interests and desires animals may or may not have, we should question if ownership and use is incompatible with animal interests and needs.

Ownership sets up the possibility of conflicting interests being resolved in the favour of the owner rather than the interest of the property, by the nature of ownership. However, the relationship between ownership or lack of ownership and treatment is not consistent across all types of animals and all ownership models – private, institutional or governmental. In reality, ownership is a poor predictor of treatment.

Ownership, in basic practical terms, aligns the interest of the animal with the interest of the owner and identifies the party that is responsible for the welfare of the animal; for example, many pets are treated very well. Yet owners are able to act in their own interests at the expense of their animals, so it is legal and permissible to abandon a pet (to a shelter for example) when it is no longer wanted. However, a lack of ownership also fails to protect the interests of animals. Completely unowned animals, such as abandoned dogs, are treated very poorly and have little protection. Wild pest species, such as rats, may be actively harmed.

While highlighting the many cases where the interest of animals and the interest of the owner conflict, leading to abuse, Francione

concedes that where interests align (for example, companion animals), then animals may enjoy benefits. However, he disputes that this should be left to the compassion of individuals.

Ownership is linked with use. In many cases we use ownership to state the right of a human to use a particular animal. Ownership does not give unfettered access to use animals, as use is often limited by welfare laws and regulations. The common view is that the use of animals for human benefit is acceptable provided that the animals are treated humanely.[38]

Cochrane[39] argues that while animals do have interests, the interest in not being used is not one of them. Use is only relevant as far as it impacts on morally significant interests of the animal. Some uses do have significant impact on the interests of animals and these require review; for example, using animals to make food products is in conflict with their interest in living.

However, animals are also used in ways that do not impact negatively on their interests. We use their pictures, welcome them into our homes and are entertained by them, without impacting on their interests. Bird watchers peer and researchers view animals in ways we would consider as a violation of human privacy, but which appear to have no impact on animals.

There are numerous uses of animals that are symbiotic, both between animal species and between humans and animals. The use of bees to pollinate crops is an example of a use that is beneficial to both bees and humans. While there is no consent or agreement of the terms, the bees clearly participate without duress. It is possible that many uses of animals may actually improve the quality of life for the animal, and thus careful consideration of the reasonableness of the use and benefit to the animal may lead to the plausible assumption that the use is in the interest of both animals.

Alternatives have been proposed to strengthen welfare provisions within ownership, thus reducing the opportunity or potential for owners to harm their animals. In particular, all animals, including laboratory and agricultural animals, should be included in welfare provisions. Another suggestion is the concept of a new model where

humans act as guardians for animals, much like guardians for children or incompetent adults.

Animal rights and zoos

'Zoos and circuses tend to be morally condemned by the animal rights/liberation movement not because of the loss of liberty such activity produces *per se* but primarily because the infringement of liberty causes suffering.'[40]

Zoos contain animals, own them, and take decisions every day that impact in a morally significant way on the interests of animals. It is necessary to consider the impacts that zoos do have on the basic interests of animals and resolve them in ways that are sympathetic to the understanding that animals have interests and that such interests are morally considerable.

Approaching the assessment of zoos, Tom Regan asks the question, 'Are animals in zoos treated with appropriate respect?'[41] While starting with what is, for Regan, an obvious fact, that the freedom of animals is constrained to varying degrees, he acknowledges that freedom can be legitimately constrained in a narrow range of cases, most obviously in the interest of the animal.

The possibility that animals have a morally significant interest in life and in freedom from pain and suffering should be considered with seriousness by zoos. While there may be less support for rights to liberty or freedom from ownership, based on no intrinsic value in these concepts for animals, their implications for the basic interests of animals in zoos are still morally significant. While it is permissible to own or contain animals, it is not permissible to harm or kill them without justification.

Well-run zoos argue that, within captivity, many animals can be treated in ways that are consistent with their needs, desires and interests. If factually supported, zoo practices may be permissible under the interest version of rights and the mere fact that animals are contained would be insufficient to condemn zoos.

Having shown that there is scope for some consideration of rights based on the interests of animals, zoos are charged with ensuring that their actions can be considered to be in the interests of the animals in

their care. This could be a significant change for zoos that prioritise the value of good customer experiences, conservation outcomes or making money ahead of the interests of individual animals.

Robert Garner[42] discusses the range of quality and type of zoo operations and how this complicates the argument for a blanket condemnation of zoos. 'The very best zoos provide environments that maximise the chances of animals being able to perform their natural behaviours.' While it is difficult to meet the needs of large and social mammals, 'the needs of other, usually smaller species however are easier to meet.' Stephen Bostock[43] delivers an examination of many aspects of zoos and their interaction with animal rights. He considers the ways that zoos keep and display animals and the important interests of animals that well-run zoos must consider.

A reality of captive life is that animals are held in a state of vulnerability and dependence. Every major decision is made by humans; when and where animals eat, sleep and mate. Birth is arranged by genetic desirability and population sustainability, death is decided by veterinarians and keepers. In the past, humans did not understand the complex interests of animals and may have made bad decisions. It is simplistic to think that in the wild all the interests of an individual animal are met. It is equally simplistic to think that zoos can continue to act in ways that do not consider the ethical and moral significance of these decisions and their impacts on the wide-ranging interests of animals.

Zoo animals – extent of moral concern

Zoos contain a wide range of animals, from jellyfish to chimpanzees. Most zoos hold limited numbers of mammals and even fewer complex mammals, while in aquariums the proportion of complex mammals is even smaller. For example, at Melbourne Zoo only 20% of animals are mammals.[44] Facilities such as butterfly gardens, and aquariums that do not hold marine mammals, contain animals that are generally not considered to be either sentient or capable of morally relevant harms. Of course a facility must provide the environment that an animal needs to live, and thus many of the requirements for good animal welfare must be provided irrespective of moral obligations.

Zoos hold a wide range of animals with different needs and preferences. Success in holding and breeding animals is dependent on understanding both the simplistic stimulus-response needs of animals and the more complex preferences. For most species the needs are easily met. However, large, social and complex mammals are rich territory for debate on autonomy and capacity and the ability of zoos to meet the needs and interests of these animals.

Zoos hold species that animal rights organisations seek to protect through the application of animal rights: for example, primates, bears, elephants and cetaceans. For these species there is a body of evidence that they are sentient, possess self-awareness and have complex interests. It can be anticipated that requests to extend non-human personhood to these species will intensify and that those who hold and work with them will be challenged to show that they can meet their complex requirements. It is possible that in future guardians will be appointed to act in the best interest of complex animals.

Pain, suffering and torture in zoos

The previous chapter dealt with the need for zoos to ensure high standards of animal welfare. The most important and widely accepted interest of animals is the avoidance of pain and suffering while providing the circumstances that provide for positive experiences. Thus zoos should act to secure the physical and emotional wellbeing of the animals in their care.

Torture is the intentional infliction of physical or psychological pain on a human or animal. No zoo should act in a way that is consistent with torture or allow the torture of animals in their care.

Research, display and care of animals in zoos must be continuously improved through consideration of the interest of animals and accepting a lifelong duty to consider the interest of each individual animal. The numbers of animals housed at zoos are not so large as to make this requirement overly onerous.

Life and death in zoos

Death of animals at zoos is neither a core of the operation nor, in the main, a desirable occurrence. The untimely death of a zoo animal is

invariably sad and even tragic. Often veterinarians and keepers spend time and energy in keeping animals alive. Yet occasions do occur where humans have to take decisions that will curtail the life of an animal (see 'Wicked problems' on p. 211).

Many zoos view the decision to terminate the life of a collection animal for any reason other than veterinary care most seriously and have independent ethics committees that must be convinced that the action is necessary and appropriate. As required by Regan, the people who decide on the termination of the life of an animal consider the opportunities that will be lost. Ethics committees must consider the circumstances of the proposed termination and its reasonableness. Zoos wishing to promote ethical termination decisions are advised to expand the terms of reference of their ethics committee to include consideration of the interests of the animal.

The final consideration of the right to life is to consider if containment results in an artificial shortening of the life of the animal that is contained. An examination of modern longevity records will show that for many species the lifespan in a zoo is significantly longer than for equivalent animals in the wild. Access to unlimited food, water and veterinary treatment and limited in-group aggression has resulted in the ability of animals to live much longer. A male lion in the wild will typically live to the age of 10–15 years; in zoos it is not uncommon for a male lion to live over 20 years. While there are studies that argue to the contrary, they tend to draw on records from the early days of zoos when many mistakes were made in the care of animals. On the basis of a long life being desirable, it could be argued that for many species life in zoos is actually more desirable.

Loss of liberty in zoos

While zoos may not need to kill animals as part of their day-to-day operations, they do contain them in ways that curtail their ability to move freely. Well-run zoos must show that the ways in which animals are contained does not create harms derived from lack of freedom. For animals with simple interests and large open-range zoos this is not too difficult.

Stephen Bostock[45] considers the differences between human and animal containment. He holds that humans have an aversion to

captivity and being dominated by others and that we transpose this aversion, unfounded, onto animals. A core of captivity is a restriction of movement, but for many species their home range is limited; they evolve to operate in a particular territory and are not free to traverse territory as humans are.

In discussing zoos, Dale Jamieson[46] believes that 'there is a moral presumption against keeping wild animals in captivity'. He supports this position by examining the goods that animals are deprived of if they are removed from the wild. The goods are described as finding their own food, developing their own social orders and generally behaving in ways that are natural to them. He suggests that the presumption can only be overcome by showing that there are important benefits that can only be obtained by keeping animals in captivity. 'The burden of proof falls on those who would confine animals in zoos.'[47] 'The detention of those that have not been convicted of any crime or of those who are not criminally liable, should be allowed only where it can be shown to be for their own good, or necessary to protect the public from a member of the community who would clearly be a danger to others if at liberty.'[48]

While it is possible for zoos to prove they contain animals that would be dangerous if left in contact with people, the reality for most dangerous animals is that the only reason they are close to people is that zoos bring them into urban areas. The argument for containment of injured or confiscated wildlife and animals of threatened species is more robust, as for many of them their injuries would prevent their survival in the wild, or the habitat they need to survive has disappeared and captivity is their last chance.

Bostock[49] challenges Jamieson's presumption with respect to animals born in zoos, which suffer no deprivation of goods. Further, he poses that freedom is only of value inasmuch as it allows for the meeting of interests; in many cases these interests can be met in captivity or, conversely, not met in freedom. Robert Garner proposes that 'Right to liberty is only morally relevant when depriving freedom causes harm.'[50] Stuttering frogs each occupy a territory of ~1 m along a river and do not leave this territory. With little effort zoos are able to provide a

habitat that is a replica of the frogs' natural territory, in no way diminishing the interests of the frog.

It has been argued that animals don't have inherent interest in freedom separate from biological interests.[51] As discussed, few animals are free in the ways claimed; the movement of most animals is limited by their environment and other animals. Just as we accept that children may have their liberty limited by being confined to a school or playground, the same may be true of animals. As long as zoos invest time and resources in understanding and meeting the needs and interests of animals in their care, they can justify that the containment is not in conflict with the interest of those animals.

Ownership of zoo animals

Zoos typically own the animals they display. The animals are not considered as assets and generally do not have a dollar value on the asset register. The global zoo industry is split between regions that do buy and sell animals and regions where animals are traded within scientifically managed breeding populations at no cost.

Not all zoo animals are owned by the facility where they are held. Some animals are on a breeding loan, others are owned by the range state, and a small group are privately owned and rented to zoos. Where animals belong to endangered species they are often owned by the range state sovereign power and placed with zoos and sanctuaries for safe care while the authorities address the threatening process. In these cases, a third interest enters the equation and the differences between the owners' regard for their animals and the interests of the user of the animal become an issue of conflicting interests between humans.

In advancing ethical zoo operations, well-run zoos need to understand Gary Francione's challenge that the current model of ownership of animals allows the interest of the owner to override the interest of the animal.[52]

Well-run zoos are different from many other forms of animal ownership in that there is no business imperative that requires overriding morally significant interests of animals. Zoos have an interest in animals being healthy and free from pain, they have an

interest in animals eating and breeding, and they have an interest in animals being held in cohesive social groupings. To achieve good welfare states, zoos employ professional animal keepers and veterinarians. Prey species are protected from predators; predators are guaranteed food without the risk of either failure of or injury from hunting. Many animals in zoos are rescued animals that would not be able to survive in the wild; their interest in life is being met in the safety of human care.

While positive welfare states require that complex animals should have the opportunity to make decisions and act between choices, there are circumstances where animals (like children) do not have the capacity to make informed choices. In these situations a competent human may act to secure the interest of the animals. It would present a major shift in thinking and result in operational changes, but it is plausible that a well-run zoo could appoint a guardian for the animals, charged with ensuring that animal interests are appropriately respected and are overridden only where they conflict with more weighty rights.

Even without the introduction of animal guardians, well-run zoos can and should act in ways that give priority to the interest of animals over the interest of the zoo or the visitors. Conflicting interests should be considered as occurring between equal parties.

The conservation goals of zoos do give rise to conflicting interests between individual animals and their species' survival and intergenerational interests. In Chapter 8, 'Environmental ethics', we will consider how these conflicting interests can be addressed with a minimum violation of interests.

Humans are able to act, at times, in ways that are not in their best interest; for example, humans choose to act altruistically or to volunteer for actions that may result in injury or pain. In these cases, consent is important. It is not possible to ask an animal to consent to participate in a program that may save its species, or that may disadvantage that individual for a time before it receives a greater benefit. In such cases, we need to consider if the action would ultimately be in the interest of the animal.

Animal keepers take many decisions on behalf of an animal in their care. It is essential to zoo-keeping that the best interests of the animal

are the primary deciding factor when making decisions about that animal. The challenge for zoos with respect to use is to show that there is a benefit to the animal. Well-cared-for animals benefit through safety, security, and a life of contentment.

Zoos have an interest in the care of the animals they display, and thus ownership of the animal largely provides for an alignment of interest between the animal, which has an interest in a life worth living, and the zoo, which has an interest in providing a life worth living to the animal. Well-run zoos should treat the interests of their animals as of equal or even greater value to the interests of the facility, visitors or staff, and strive to avoid conflicts of interests wherever possible.

Rights beyond welfare based on Interest Theory

While the claim that animals should have rights beyond welfare is challenging to current thinking about animals and their treatment in our society, animal rights do not provide a knockout blow to zoos.

The case for animal rights beyond welfare, based on Will Theory, is not conclusive. There is sufficient doubt that animals are able to make the kinds of complex choices, based on a proper understanding of options, consequences and others' rights, to be considered as morally considerable for rights beyond welfare.

However, I can see the importance of protecting important animal interests and I think there is scope to consider the Interest Theory of rights as relevant to animals. The application of sensible, interest-based rights for animals has the potential to require substantial changes in zoo operations. The rights should be linked to actual interests. For example, while the need for food is self-evident, consideration that an animal needs to be free in order to find food is less evident as there are other ways that the food can be provided. Thus I believe a right to food is defensible, yet the right to freedom may require more motivation than the need for food.

Advances in sentiment and understanding of the best interests of animals require that zoos pay more attention to the key rights discussed in animal rights literature. The right to life, liberty, freedom from torture and from ownership are important concepts. Well-run zoos should consider what it means to fully align the interest of the zoo with

the interests of the animals that reside there. It is plausible that any negative impacts of containment can be eliminated through holding appropriate animals and always acting in, or at least taking account of, the best interest of the animal.

An emerging trend, which has the potential to change the way that complex animals are treated, is the recognition of certain species of animals as non-human persons, most notably apes in the Netherlands and dolphins in India. The Indian government statement says:[53]

> Whereas cetaceans in general are highly intelligent and sensitive, and various scientists who have researched dolphin behavior have suggested that the unusually high intelligence; as compared to other animals means that dolphin should be seen as 'non-human persons' and as such should have their own specific rights and is morally unacceptable to keep them captive for entertainment purpose.

The creation of a class of non-human persons is an attempt to manage our understanding of the increased complexity of a myriad of animal species with different interests.

While meeting the moral requirement of ensuring that zoo animals do not suffer is achievable for most species, I expect that discussions on the potential for some species to be considered as non-human persons will one day lead to limiting the range of species that zoos may hold and display, or at the very least will pose additional obligations on those that care for non-human persons.

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6
Consequentialism

> Everyone to count for one, and nobody to count for more than one.[1]

Introduction

Consequentialism has the central concept that the worth or rightness of an act is judged in terms of its consequences. Consequentialism, at its most simple, is a value maximising theory.[2] The value system describes what it is that needs to be maximised. The rightness of an act is based on the extent to which the consequences of the act maximise value. A policy or operation is judged by the combination of all the acts that make up the operation. Only contributions to good or bad consequences matter.

Over time, the meaning and application of consequentialism has changed and adapted to accommodate the complexities of moral debate and the challenges of applying it to real life. It is possible to derive great insight and understanding of moral complexity through an examination of the consequences of an act, rule or operation.

Peter Singer's book *Animal Liberation* examined the use and misuse of animals from a consequential perspective. Using utility as the value system, Singer proposes that when it comes to the use of animals we should consider all the costs and the benefits to determine if the actions are morally acceptable. It is not enough to consider only the costs and benefits to humans, in fact to do so is speciesist, which for Singer is as unacceptable as racism or sexism; 'speciesists allow the interests of their own species to override the greater interests of members of other species'.[3] Singer's application of consequentialism challenged people to think about the impact on animals of human use of animals, launching

the animal liberation movement, which strives to reduce the experiential costs to animals.

The consequentialist approach to the question of the permissibility of zoos is popular with zoo professionals and supporters. Faced with scrutiny of the welfare of animals and the need to justify their existence as institutions, well-run zoos have used consequentialism to evaluate their net position, striving to increase benefits while reducing the costs of operations. Pure entertainment has been augmented with research and education programs. Zoos learned how to reduce the costs to animals in their care through better knowledge and improved welfare standards. The intimate involvement with animals resulted in zoo professionals developing a greater understanding of the interconnectedness of biodiversity and ecosystems, and zoos became early proponents of protecting species and wilderness systems.

Opponents to zoos claim that zoos overstate the benefits while understating the costs, yet detailed moral accounting or calculation of the morally relevant consequences of zoos is scarce. Both challenges and defence tend to be emotional, based on perceptions.

Consequentialism is useful in assessing the moral territory of zoos. It allows for the recognition of the moral costs of zoo operations, in terms of resources and harms to people and animals, and the benefits to humans, ecosystems, species and even individual animals.

Consequentialism

In considering the rightness of an action, we are asked to consider the consequences of the action and determine if the good outcomes outweigh the bad outcomes and to compare that to the sum of other available actions. The framework strives to accommodate the challenges of reality, namely that few actions are purely good without any impact on others. There are five core principles to consequentialism:[4]

- only the contribution to good or bad consequences matters
- consequences are evaluated as better or worse in terms of the wellbeing of all affected
- consequentialism is *aggregative* in that it is assumed that good and bad consequences can somehow be summed across individuals

- it is *egalitarian* in that equal benefits and harms count equally, to whomever they accrue, and
- it is a *maximising* theory; thus, we should act to produce the *best* consequences, so it objects to a course of action if some better option is available, even if the action itself has good consequences.

Various forms of consequentialism consider different value systems to define what are good and bad consequences. Hedonism considers the happiness that an action will produce, but draws criticism as increasing one's happiness at the cost of another's misery may be motivated, which intuitively seems wrong. Utility theory tries to accommodate an assessment of both happiness on the one hand and pain and suffering on the other. While easy to describe, the challenges of pragmatically determining the consequences and then comparing them in a sensible way has made utility really only useful in theoretical debate. Most people use money as a value system in making day-to-day choices and business decisions. In a moral framework money may be a proxy indicator, quantifying what people are prepared to pay or demand to be paid for certain outcomes to rank a range of actions. Intangible benefits such as happiness and suffering are difficult to quantify in terms of monetary value; however, it is possible to equate a monetary value to what people are prepared to pay for an experience that will give them positive experiences.

To many philosophers, the problem with consequentialism is not just that the value system may be wrong but also that its structure is somehow erroneous.[5] They argue that it is possible that value maximisation may be forbidden, for example in cases that would violate rights. There may be grounds to avoid the best action, sacrificing your own good for the good of another.

By considering only the outcomes, consequentialism has the potential to promote and defend atrocities, for example if benefits to a large group can be bought at significant cost to a few. The problem of atrocities is presented in the example that it would be permissible to kill one person to save six. Approaches that exclude large groups, like people of particular ethnic groups or animals, have the greatest risk of misusing consequentialism to defend atrocities. Clear identification of all parties,

subtle weighing of interests to consider significant costs appropriately and a focus on facts can minimise the risk of outcomes that condone atrocities. Yet applying consequentialism to real examples runs the risk of defending atrocities.

Consequentialism also has the potential to create nonsensical situations. For example, assuming that a human life has more pleasure than pain, based on our acceptance that death is the most serious evil, we should strive for as many humans as possible, but too many humans will decrease the average happiness. This 'wears a certain air of absurdity to the view of common sense; because its show of exactness is grotesquely incongruous with our consciousness of the inevitable inexactness of all such calculations in actual practice.'[6]

Unintended consequences and unknown outcomes complicate discussions. It is often difficult to have a full understanding of all the consequences before deciding on a course of action. One solution is to limit the scope or to consider a finite set of impacts; however, care must be taken to include all important stakeholders.

Many sophisticated versions of consequentialism have been developed to address these challenges. Regardless of the problems, it is possible to derive benefit from using consequences to understand a complex moral situation such as the morality of zoos, where the scope and impacts can be identified and to an extent measured. In constrained systems, such as zoo operations, consequentialism looks plausible to provide an overarching moral assessment. While not providing an absolute moral judgement, the consequential assessment indicates the measurable benefits and costs of zoo operations.

Consequentialism and zoos

'Captivity is so controversial because it provides such a mixed picture of possible benefits and harms.'[7] Defenders of zoos point to all the things that they do well. Animals benefit from secure food, veterinary care, and protection from environmental and predatory harms. Humans benefit from the opportunity to experience animals and to see them up close. Scientific research is undertaken, providing a knowledge base to help both captive and wild animals. Well-run zoos

offer their skills and resources to assist wild animals through rescue and rehabilitation work. Conservation programs focus on the holding and breeding of endangered species, and deliver funds, awareness and direct action.

The possible harms of captivity are not always obvious or dramatic. Zoos do not intentionally kill or hurt animals as a direct part of their core business and thus much of the harm in a well-run zoo is in the impact of captivity and lost opportunities. The animals with the greatest capacity to suffer, the large, intelligent and very active mammals, are also the major attractions at zoos, drawing visitors and providing potentially profound encounters. Well-run zoos invest significant time, skills and resources in caring for their star attractions and ensuring their welfare, thus minimising harms.

The quality and resources of zoos vary significantly. There is no doubt that the worst zoos, where animals experience ongoing physical harms, neglect or abuse, are not morally defensible and the ethical shortcomings are obvious. The real challenge lies in demonstrating if the possible benefits outweigh the possible harms in well-run zoos. The maximisation requirement necessitates that not only should the benefits outweigh the costs but that zoos should be the most effective way of achieving the benefits.

To test the consequential approach I have applied the theory to a practical example, the operations of the Melbourne Zoo. I have limited the consequences to experiential outcomes, namely the positive and negative experiences that flow from zoo operations, and argue that zoos should minimise suffering experienced in zoo operations while maximising pleasure.

It should be noted this is largely an academic exercise, which demonstrates the complexity and number of assumptions that must be taken to undertake such a calculation. No doubt all the assumptions may be challenged, and my assumption may well frustrate readers. As such, I would encourage you to contemplate how you would approach estimating the net consequences of an action or operation. This approach was followed by Peter Singer in *Animal Liberation*,[8] enabling him to show that many animal uses are morally unacceptable.

Experiential outcomes

In examining the consequences of zoo operations, I propose that the assessment can be made on the experiential outcome for all involved in the zoo operation. Versions of consequentialism look at outcomes in terms of the impact on all morally relevant beings. I consider whether the experiential outcomes are positive (as in pleasurable, educational or enjoyable) or negative (as in painful, frustrating or boring).

Following the call of Peter Singer,[9] I consider the interests of all sentient animals equally. This means that a positive hour lived by a human should carry no more weight than a positive hour lived by an elephant or a possum.

Deliberate killing or hurting of animals is not a part of the core business of zoos, so I propose that the benefits and costs should be evaluated in terms of diminished or enhanced experience. For example, an hour of boredom (negative experience) can be offset by an hour of engagement (positive experience). Humans regularly make these kinds of value assessments, queuing for an hour to ride a roller coaster for five minutes.

The scope of the experiential outcome will be concerned with the following broad groups of stakeholders:

- humans who visit or work within the zoos
- members of the general population who like or dislike the zoo
- large or social sentient animals whose needs and desires cannot be adequately addressed in captivity. These are animals for which the zoo experience is a diminished experience
- small or simple sentient animals whose needs and desires can be met adequately and even well within the confines of a zoo. These animals' experiences may be similar to or even better than they would have been in the wild
- wild animals that live in the zoo but are not in the collection (such as birds), and free-ranging zoo animals.
- non-sentient animals that are considered as having neutral experiences.

In considering the experiential impact of zoos on these stakeholder groups, I have simplified the assessment to consider an hour-by-hour

tally, by attributing either an enhanced, neutral or negative experiential outcome to the group. In order to put a scale to the considerations I will consider the example of the Melbourne Zoo, an old and well-respected institution. The numbers I have used are relevant to 2016 and can be referenced in the Zoos Victoria 2015/16 Annual Report.[10] Melbourne Zoo operations are typical of good urban zoos. It should be noted that while the assessment shows the practical application of consequentialism, we cannot extend this assessment to all zoos.

Human experiences

Humans have the choice to attend zoos or to work at zoos. We can thus assume that they derive benefits from this experience. The benefits are diverse and may be significant. Annual visitor surveys consider satisfaction with the experience and Melbourne Zoo performs well in terms of visitor satisfaction. People attending zoos in Melbourne have many other choices for entertainment or education, with high-quality museums, sporting events and cultural activities on offer. Yet annually 1.438 million visitors pay to enter the gates of Melbourne Zoo. In terms of the value allocated by visitors, they consider that the visit is justified both in terms of the cash they will pay to enter and the average allocation of 4 h of their time to this undertaking. Having enjoyed themselves, they emerge richer from the experience. They will have learned about nature and animals, shared a positive time with their family and made connections with animals. Thus human visitors to the zoo, including school and educational programs, deliver 5.752 million hours of positive experience.

Melbourne Zoo employs 300 full-time equivalent employees made up of 187 permanent employees and 113 casual or seasonal workers. About 380 volunteers provide their time to the zoo as guides, running the information kiosk or undertaking animal observations. The catering contractor employs 60 full-time equivalent staff. Together employees and volunteers spend 600 000 h at the zoo each year, most of which can be deeply enjoyable and satisfying. For staff there is the additional benefit of payment, which supports their family's survival. While work can be challenging and stressful, we generally consider the hours humans spend in gainful employment as beneficial, especially

when they are working in an attractive environment, with animals they love and happy visitors. Thus we can consider the work hours of the zoo volunteers and employees as a positive experiential outcome. While it may be argued that the scope of positive benefits can be extended to families of employees, suppliers and contractors, I will limit the assessment to direct onsite employment.

A survey of the general population of Melbourne found that less than 6% of the population had never visited the Victorian zoos (Melbourne Zoo, Healesville Sanctuary and Werribee Open Range Zoo).[11] Half the population actively supports zoos by visiting them within a three-year cycle. A 2012 PETA (People for the Ethical Treatment of Animals) protest against Melbourne Zoo attracted six people who are actively opposed to zoos. The Zoo has 245 000 members comprised of both active visitors and supporters. It is plausible that the negative sentiment experienced by the minority opposed to zoos is more than offset against the positive sentiment experienced by those who visit or purchase zoo memberships.

Animal experiences in the zoo

The animals that can be considered to have some level of diminished experience in zoo environment are the large and complex sentient animals. A city zoo such as Melbourne Zoo houses a few large mammals for whom it may be argued their experiences are diminished by captivity. The animals in the care of Melbourne Zoo consists of 220 mammals and 294 birds. Large and complex sentient animals include eight elephants, four gorillas, four seals, three giraffes, three lions, five tigers, seven orang-utans, one bear, 16 baboons and another 50 animals for which experiences are to some extent less satisfying than a wild experiences. Of course this assumes that, for animals, wild experiences are satisfying or better than captive experiences, an arguable assumption in this time of rampant habitat destruction, hunting and disease. But to continue with the assessment we will err on the side of caution and assume that 100 animals in the collection have some form of diminished experience. It is further assumed that the diminished experience is for all their waking hours. Most animals will experience some positive experiences, such as the joy of feeding

time or enrichment activities, or times of neutral experiences. For this assessment the positive and neutral experiences are considered, conservatively, as too small to count in the assessment. The total negative experiences for large and complex animals is assessed as 100 animals with 12 h per day of diminished experience 365 days per year, or 432 000 h of diminished or negative experience.

For the remainder of the animals considered sentient (all mammals, birds and some reptiles), their interests and needs may be met within the confines of a zoo. They are secure from danger and predation, vets control their pain and injury, they live in natural groups, breeding, playing and performing natural behaviours, and they live long lives in captivity. Birds are held in large aviaries and big groups, they are able to fly, socialise and partake in natural behaviours. It could be argued that for these species, particularly the most endangered, their daily experiences are no worse than in the wild and perhaps even better. I will not count these animals as adding to the positive experiential outcome although the point may be argued. Instead I consider their experiences as neutral, in consequential terms, as their experiences are neither enhanced nor diminished by living in a zoo as opposed to the wild.

The animals that are not considered as sentient (the remaining reptiles, amphibians, butterflies and invertebrates) comprise a large proportion of the animal collection; over 36%. In fact, due to their short life-span and high mortality rate in the wild, it could be argued that the butterfly house provides safe harbour and enhanced experiences to many thousand butterflies per year. There is a temptation to offset the safe and fulfilled experience of 400 butterflies in the butterfly house against the diminished experiences of the 100 large mammals. But this would be erroneous. Animals that are not considered sentient are not considered to have cognitive experiences, either good or bad. Thus for this assessment I will only count the impact on sentient animals.

Finally, there is a group of animals that actually derive a positive experience from the zoo environment: the free-ranging animals that have chosen to live in the zoo. They thrive on the abundant food, plants and cover. Protected from predators by the walls of the zoo, they experience all the advantages of an environment suitable for their species. This protected and thriving population of free-ranging animals is estimated at

20 peacocks, 200 possums, 1000 rats and many lorikeets, bats and nesting birds. These animals all experience enhanced satisfaction at the zoo, shown through their choice to live in the zoo grounds. However, I assume their satisfaction would be similar in any protected park and thus I will not count these positive experiences in the assessment.

Rescue and rehabilitation

Zoos have skills and facilities that are designed to hold and care for wild animals. Well-run zoos are able to dedicate a portion of their resources to the care and treatment of wild animals injured in the surrounding locale. Animals that are experiencing pain or suffering through injury or illness may be brought to zoos where they are treated, recuperate and returned to the wild. Rescued animals that are able to be treated but are not suitable for release are retained by the zoo.

Healesville Sanctuary is located in the middle of a large park network. Many animals are injured through collisions with motor vehicles, clearing of habitat and bush fires. Each year over 1000 animals are brought to the Sanctuary for treatment.[12] The Zoo hospital has been designed to facilitate their treatment. The skills of the veterinarians are made available to other veterinarians who request assistance in treating wild animals. The Sanctuary veterinary team has developed the state-wide standards for Australian wildlife treatment and care. Without the facilities and skills of the zoo staff, these animals would not be treated. Of the animals presented for treatment, about one-third are killed due to the extent of their injuries and the assessment that they will not recover sufficiently to enjoy good quality of life. Of the animals that are treated, ~95% are returned to the wild. The only animals kept for life in human care are those that can recover but will not be able to support themselves in the wild, for example birds that will not be able to fly or animals that are so young that they must be hand-raised and will require ongoing captive care to survive.

Melbourne Zoo treats and releases ~450 animals each year. The individuals are usually held until they have recovered, which can vary from a few days to a few weeks.

Melbourne Zoo runs a Marine Rescue Unit focused on the rehabilitation and release of seals in and around Port Phillip Bay. Each

summer around 100 seals are entangled in fishing lines or succumb to disease or starvation. Melbourne Zoo specialises in treating seals and returning them to the Bay. Only cases where a seal would not be able to survive in the wild result in it being retained by the zoo.

In both these cases, animals living outside the zoos benefit when the skills and resources developed to aid zoo animals are made available to the wider animal population. Although this is a small contribution to the overall health and success of animal populations, the care offered to individual animals in distress is significant. For these individual animals, the experience is significantly positive and if successful results in an ongoing life.

The positive hours experienced through the alleviation of pain and return to good health could be estimated at 12 h per day by an average of five days by 550 animals, equating to 33 000 positive hours.

Net experiences

The hours of experience can be compared and an overall outcome determined. A year of operation at Melbourne Zoo results in 6 352 000 h of positive experiences for people, 432 000 h of diminished experience for large sentient animals living in the zoo, and 33 000 h of improved experience for rescue animals. Combined, this provides a net positive contribution of 5 953 000 h.

As we saw in the beginning of this chapter, consequentialism can suffer from allowing atrocities when purely mechanical application of the positive and negative outcomes is considered. While the outcome for Melbourne Zoo is positive, two points stand out. First, the positive and negative experience accrue to different parties; thus this is not a case of a party experiencing some cost to be rewarded later. Second, the parties that bear the diminished experience are not able to make this choice; they do not participate freely. These considerations are significant in the overall assessment of the consequences and a good example of the danger of using consequentialism as a moral assessment or argument.

Finally, the scale of the negative experiences is relevant. There is a difference between a large number experiencing a small amount of suffering and a few experiencing a large amount of suffering. In Chapter

4 I examined the wrongness of unnecessary pain and suffering, and the commitment of well-run zoos to providing positive welfare experiences. Melbourne Zoo is recognised as a leading zoo and does not subject animals to unnecessary pain and suffering. Hence we can assume that the kinds of atrocities that would override the positive experience/negative experience equation are prohibited. The level of negative experience is limited to loss of liberty and choice; thus I don't believe that this assessment compares atrocities with trivial experiences.

Accepting the inherent flaws in consequential assessments, this simplistic evaluation shows that based on the experiential outcomes for sentient beings, counting all equally, there is a significant positive balance of experiential outcomes produced by some zoos.

Improving the experiential outcome

In testing the improvements that could be considered to either increase the positive experiential outcomes or reduce the negative experiential outcomes, several interventions are possible. One approach is to remove from zoos all the large and complex animals for which the zoo experience is negative or diminished. However, the gain would be offset against a possible loss in visitation because the large charismatic animals are often a key attraction for zoo visitation and bring greater enjoyment to visitors.

As a comparison to Melbourne Zoo, Werribee Open Range Zoo holds ~30 large charismatic animals in enclosures that are typical of a city zoo, limited in size and bounded with fences, walls or moats. The remainder of the animals roam in large enclosures in mixed species displays. Thus Werribee Open Range Zoo can be seen to generate only one-third of the negative experiences for animals as calculated earlier. Werribee Open Range Zoo sees 616 000 visitors annually, which is approximately 40% of the visitors to Melbourne Zoo, and employs approximately one-third of the staff numbers. Werribee Open Range Zoo does not receive a significant number of wild animals requiring treatment. A comparison of the two facilities provides several ways to answer the question regarding which is a better zoo, taking the moral consequences into account (Table 6.1).

Table 6.1 Consequential comparison of Melbourne and Werribee Open Range zoos

Zoo	Negative outcomes (diminished hours)	Positive outcomes (enhanced hours)	Net experience	Ratio positive to total (%)
Melbourne Zoo	432 000	6 385 000	5 953 000	94
Werribee Open Range Zoo	144 000	2 664 667	2 520 667	95

While both facilities produce a net positive outcome, the moral superiority can be contested based on the indicator chosen. If the goal is to minimise negative outcomes, Werribee Open Range Zoo performs better. Against a goal of maximum positive outcomes, Melbourne Zoo performs better. The overall net positive outcome favours Melbourne Zoo. In terms of the ratio of positive hours to total hours, Werribee Open Range Zoo outperforms Melbourne Zoo. The comparisons serve to show how difficult any numeric evaluation of moral consequences is, and how little can be concluded from such an exercise.

Increasing net value

The large net positive impact of zoo operations suggests that a blanket closure of well-run zoos would not provide maximum value to animals and people, rather such a step would reduce the overall value to society. Yet it would be wrong to think that there are no ways to increase the net positive outcomes of zoo operations or to maximise the value of well-run zoos. Based on the arguments presented above in calculating the positive outcomes related to experiences, conservation and animal treatment, several strategies or areas emerge for further examination.

Zoos are able to decrease negative experiences for animals, most particularly through improved facilities and welfare for the large, sentient animals. Removing animals for which zoos cannot provide at least a neutral experience (through attrition or relocation to a more appropriate facility) will improve the zoo value proposition.

Zoos can also focus on increasing the number of people who experience positive zoo experiences and increase positive experiences

for both visitors and employees. Because rehabilitation work delivers positive consequences, zoos are also able to increase positive outcomes by increased investment in the rescue and rehabilitation of injured animals.

The consequences are positive

Consequentialism is a theory that is simple to understand but difficult to apply with any sophistication. Nonetheless, it provides a way to consider the impacts of an act or operation. Consequences matter; and they give an indication on the *prima facie* permissibility of an act or operation. In interpreting the outcome, care should be taken to address the weaknesses of consequentialism and to acknowledge the assumptions that simplify the assessment.

The application of a consequential assessment to Melbourne Zoo has shown that a zoo is able to quantify the impacts in terms of positive and negative experiences, to both people and animals. Positive experiences, of people and of rescue animals, are considered against the diminished experiences of several large, complex, sentient animals. In a simple calculation of the experiential hours, the positive experiences at Melbourne Zoo outweigh the negative experiences by 14.5 times, assuming no weighting for the intensity of the experience and allowing for all parties to count equally.

The assessment is subject to the criticisms of consequentialism. The intensity of the experience, either positive or negative, is personal and difficult to compare and contrast. However, by examining the consequences for all beings impacted over a significant period of time (one year) it is plausible that the intensity of experience will be averaged.

A final concern with consequentialism is that a small number of individuals may be required to sacrifice too much. In the worked example of Melbourne Zoo, it is assumed that no animals are held in conditions of unnecessary or ongoing pain and suffering. No doubt as more is understood about animals and their interests and emotions, this assumption may be found to be flawed.

Although well-run zoos may be able to show that their positive experiential outcomes exceed the negative experiential outcomes, there

is still room for improvement. In real-world application, consequentialism allows for an ongoing quest to increase positive outcomes while reducing negative outcomes; a strategy that could be used to guide zoos in improving their moral standing. I would encourage each zoo to assess their operations and decisions by evaluating the positive and negative experiences for all parties, not to provide justification for their decisions, but rather to understand the consequences of their decisions. In this way zoos can strive to reduce any negative experiences that may be generated.

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7
Virtue theory

Virtue is an acquired disposition to do what is good.[1]

Introduction

Virtue theory is interested in the character of people.[2] By considering virtue theory we will explore in more detail the experiences that zoos facilitate and their impact on the character of visitors and the community. Virtue theory uncovers several interesting debates and considerations that will contribute to the central question of this book: are even the best zoos ethically and morally defensible? Like all the theories examined, virtue theory on its own is unable to do all the work of determining the moral standing of zoos. It does, however, provide an alternative way of understanding the complex moral territory of public institutions, as both a reflection of and an influence on the values and virtues of a society.

Many parents bring their children to zoos to see animals and engender an enhanced appreciation and understanding of the beauty of the animal kingdom. By bringing animals into the sphere of concern of humans, it is argued that zoos increase the likelihood of humans taking action to protect and preserve animals and their environments.[3] While at the zoo, these parents may share their values and outlook, using the zoo as a place to define and discuss their relationships with other animals.

The validity of this interaction is based on the honesty of the representation of the animals in the zoo and the depth of care, compassion and respect afforded to the animals. If zoos cause pain and suffering to animals, and demonstrate human pride, domination and deception, then they undermine the very values that they strive to promote.

Several virtue-based challenges emerge from writing that is critical of zoos. Detractors argue that zoos are a form of prison for animals, relics from an imperial time. In these prisons the animals are treated with a lack of respect, and pain is a constant part of the lives of the animals. 'The zoo is a locus of pain. Its cruelty reveals itself most obviously through the range of barbarities that captive animals suffer.'[4] There are few people who would support a zoo that was a place of pain and suffering. As public institutions, the practices of zoos are open to scrutiny and observation. In many ways, zoo animals experience better welfare and care than most other animals that are kept from the view and scrutiny of the general public. Political academic Siobhan O'Sullivan discusses the relationship between visibility and cruelty and thus how a hypothetical rabbit could experience vastly different treatments as a feral rabbit, a laboratory rabbit or a zoo rabbit; with the greatest protection afforded while on display in a zoo.[5]

Few virtue cases are simple or clear cut. Virtue argument is not merely a contest between good people looking after animals and helping to save the world, and bad people purposefully caging animals for pleasure, routinely doling out pain and suffering. If it were, we would be able to line up the well-run zoos as good and the bad zoos as bad, but this would tell us little about the morality of zoos.

Rather, I will consider whether the operations of a zoo can be virtuous; a place where people act with deliberation and consideration, with wisdom in the creation of good for humans and animals, reflecting great moral virtues. A zoo operated virtuously would reflect the virtues and values of the people associated with the zoo, while simultaneously shaping and influencing the virtues and values of visitors, community and wider society. The impact of virtuous choices in the operational aspects of the zoo will no doubt raise standards and conditions for animals and reinforce the reasons why people visit zoos: to meet animals and to reflect on the ways that humans can live, accommodating the interests of other animals and the biotic community.

Virtue theory

Virtue ethics, in its account of right action, is agent-centred rather than centred on consequences or rules. Thus the central premise for virtue

ethics' account of right action is that an action is right if, and only if, it is what a virtuous agent would characteristically do in the circumstances. This leads to the need for a definition of a virtuous agent. A virtuous agent is one that has certain character traits that are admired by society. Much is said and disputed about which character traits are virtues, leading to challenges in knowing and defending virtues. Generally we turn to a list of the character traits celebrated by our culture or society, accepting that this may be different for people in other cultures or places. The great moral virtues, articulated by Aristotle over 2000 years ago in *Nicomachean Ethics*, are courage, temperance, wisdom and justice. He held that these virtues are essential in the pursuit of happiness and beauty, which he considered to be the ultimate goal for a good life.

In knowing what a virtuous person would do, we can go to people more virtuous than ourselves to ask advice. If we want to defend a bad action we might be more likely to ask those less virtuous or our peers. For a characteristic to be considered virtuous we ask: is it good for me, and how does the possession of this virtue make me a good human being?[6]

People are located in time and history; our judgements are often coloured by our environment. It is not uncommon that virtuous people may be located within unethical systems. In the real world there are many situations where even the best action encompasses bad outcomes; these are considered tragic dilemmas. While consequentialism or deontological, rule-based, approaches may be able to give guidance on the right action based on a best possible action, for virtuous agents all actions may be bad, leaving the agent with regret and sorrow.

In a tragic dilemma, the virtuous agent may become tarnished. If genuinely considered and virtuous in their decision making, the agent may take a heroic stance, getting their hands dirty for a greater good. In these cases, virtue ethics does not provide the comfort that one may have made a defensible decision in a bad situation, but rather helps explain how one should act, respond or feel.

Many actions may be considered as virtue neutral, in which case virtue may be held in the way that the action is undertaken, with neutrality being determined by the consensual view of our society. For example, in a society that accepts the sustainable use of animals as a

prevailing paradigm, keeping an animal is considered virtue neutral, and to do it well is virtuous while to do it badly is not and would be considered wrong. Modern zoos are located in a time where owning animals and using them for human ends is considered permissible and largely virtue neutral. In our present time, in Western society, we don't judge someone because they own a pet; we do however judge people on the way in which they care for their pet. It is predominantly in the way that animals are used that the virtue discussion will occur. Virtue is attached to the ways that zoo operations are conducted, rather than to the existence of zoos.

Virtues and zoos

Ethics is about how individuals should best live. Zoos ethics is about how zoos should best operate. The discovery of the virtuous way to live starts by considering what would roughly be agreed by all people of good upbringing. Aristotle holds that a virtuous man pursues happiness, beauty and justice through excellence of character. It is plausible that a zoo pursuing happiness, beauty and justice through excellence of operations could be considered to operate virtuously. Things which can be considered beautiful and just involve great discussion and disagreement.

To consider virtue and zoos is to ask what exactly zoos do to promote beauty, happiness and justice, and whether zoos contribute to the experience of living for humans and animals. Institutions such as zoos, like individual humans, can be virtuous in their actions. Customs, practices and routines within a zoo replace habits and manners in humans. In virtue ethics, habit is seen as a precondition to character, but real character requires thought and effort. For zoos to operate virtuously they need rigorous consideration of the customs and practices within the zoo, to test and improve their nature and hence the character of the operations.

As legal entities, zoos exercise choice in actions through the people who work in zoos or represent the organisation. It is the collective actions of people that will frame the virtue or lack of virtue in the operations of a zoo. Zoos are long-lived cultural institutions that reflect the attitudes, norms and choices of the community in which they are located. Keeping animals contained is, in the main, a voluntary choice

based on a desire to see and experience wild animals. Yet many other types of zoos have started from a different perspective; sanctuaries, for example, contain and care for injured animals that cannot be returned to the wild. In addition, many zoos are called on to hold dangerous and rogue animals that have become a threat to people. The perilous state of threatened species has created a need for breeding programs and the creation of safe places for critically endangered species while other agencies tend to their habitats. The increasing acceptance that the life of an animal is of value provides the setting for conflicting interventions, all of which may have negative impacts.

In the cases of rescue animals, housing dangerous animals and the conservation imperative to preserve and recover endangered species, it is plausible that zoos face a tragic dilemma. Good people are faced with problems for which there are no simple or right answers. Killing an animal because it is dangerous to people, or allowing the loss of species, seem like bad outcomes. But containing individual animals to help save their species or to protect people seems to ask for a significant sacrifice by the individuals. Both actions may result in a degree of suffering or loss, and each action has the potential to harm the virtuous agent that must choose the way forward.

It is important that decisions and choices with respect to the care and display of animals are made based on rational deliberation. To slavishly follow previous custom and practice will not be a defence for behaviour that may be considered unvirtuous. Satisfying the desire to see animals up close and enjoy the beauty of their form, providing happiness and entertainment to the viewing population, must be deliberated against the virtues of compassion, care and respect.

As I consider virtuous behaviour within zoos, I will isolate the most important virtues and their associated vices. Aristotle discussed virtues as located between two vices; on one side the vice of insufficient virtue and on the other an excess. The aim is to find the golden mean in between these extremes. Virtuous actions must be done knowingly, chosen for their own sake and according to a stable disposition. Interacting with animals in a relationship of dependence and vulnerability, zoos are an interesting place to see the best and worst of human behaviour and acts.

We can consider the people associated with zoos; those employed, those who visit and those who support zoos. In a perfect world virtuous people are aligned with virtuous undertakings, yet our world is seldom perfect. As an indicator of the virtue of zoos, I start by considering the people associated with zoos and their value systems. If zoos attract virtuous people as guests and employees, we may think that zoos operate virtuously, but care must be taken as tragic dilemmas allow for the possibility that virtuous people may be associated with a facility or operation that is not virtuous. Despite their best efforts, they are tarnished through the experience.

Zoo people

Building zoos became popular around 150 years ago, during the time of rapid expansion of European states. Prior to that time private menageries had been the domain of kings and emperors, kept for their private enjoyment. At a local scale people have kept domestic animals and pets for thousands of years, with DNA testing showing that dogs became domesticated between 18 000 and 32 000 years ago.[7]

Critics of zoos hold that the roots of zoos in imperialism are still important as they shape the premise of displaying animals. Randy Malamud holds, 'Repositories of power conditioned by the imperial mindset, zoos prosper amid the nexus of imperialism. In zoos people dominate animals, regulating them to bounded and confined habitats, and contextualising them in ways that reflect how we overwrite the natural world with our own convenient cultural model.'[8]

The concept of zoos as Victorian-era artefacts is popular among many zoo critics – Ehrenfeld,[9] Rothfels,[10] Mullan and Marvin[11] all describe outdated practices as an indication of the inappropriateness of zoos. 'In many ways, the zoo has come to typify the themes of the Age of Control: exploration, domination, machismo, exhibitionism, assertion of superiority, manipulation.'[12] Jeremy Cherfas writes, 'The primary motive was to demonstrate the power and glory of important people, and this sentiment is still part of the zoo world.'[13] David Hancocks proposes that the Victorian concept of a zoo is no longer sufficient.[14]

Permanently sited public zoos emerged after the French Revolution, based on equality and allowing access for all to see and know animals.

Most zoos today are cultural institutions owned either privately or by governments. In modern well-run zoos, uninformed and naive staff and practices have been replaced by professional keepers with tertiary qualifications and modern standards of zoo keeping. Sterile living spaces have been replaced in modern zoos with appropriate interpretations of habitats, designed to meet the need of the individual species and often individual animals.

People who work in zoos

Critics sometimes show zoo personnel as uncaring and despotic, a community devoid of virtue. Malamud describes, 'The image of the zoo keeper as a benevolent slave owner recurs throughout zoo stories.'[15] Yet this statement is as fictitious as the stories he examines.

Malamud believes that zoo keepers are immune to the pain and distress of the animals in their care, completely lacking in compassion. He queries, 'Perhaps it is unrealistic to expect keepers to show sincere and engaged concern for ailments that befall animals or to empathize with their pain.' He concludes that zoo keepers are blind to the suffering that they cause. 'Those who inflict this pain are adept at rationalizing, trivializing or denying its existence.'[16]

No one is forced to work with animals or in zoos. Zoos generally attract compassionate, skilled people who like animals and who want to work with them to improve the animals' lives. Compassion is the perception of pain in others and works to bring our attention to another's reasons to change circumstances.[17] Thus, to be completely lacking in compassion would be a barrier to the work of a zoo keeper.

Far from being conditioned to accept and inflict pain and suffering, most zoo keepers are actively involved in preventing pain and suffering. Staff are vocal opponents of any actions that exploit and harm animals. In Melbourne Zoo, staff have been instrumental in reporting opportunities to improve animal wellbeing and continuously improving standards of care. Zoos often work with authorities to rescue animals from abusive situations. Customs officials call on zoos to care for illegal shipments of animals and confiscations. Many zoos treat and house animals that have been injured. As discussed previously, Melbourne Zoo works with injured seals, while Healesville Sanctuary treats injured

native species.[18] Well-run zoos employ staff who are committed to animal care and wellbeing, ensuring they have the skills and resources to deliver good animal welfare.

There is significant evidence that working in places that are morally challenging (such as abattoirs and prisons) creates stress and in many cases debilitating mental states.[19] It is well documented that jobs containing highly contentious moral content have a significant negative impact on the people who work there, evidenced by stress, high turnover and violence.[20] The employment of people with limited education, often under duress, is also an indicator of an industry that may present individuals with morally confronting practices.

Typically, people who work in zoos love their work. They do not suffer from debilitating stress; they very often have long careers with extensive years of service. They work in attractive settings with gardens and lush plantings, their customers are usually happy, and they have the privilege of working with and getting to know animals. Vacancies are fiercely contested, with advertised positions attracting significant numbers of applicants. Animal-keeping staff are skilled and generally highly qualified, and many zoos employ staff with PhD and Masters degrees.

Zoo staff tend to be high in sensitivity and social awareness. Good keepers are not immune to the feelings of their animals. On the contrary, a good keeper must be able to identify the slightest change in the behaviour or attitude of their animals if they are to be aware of illness or aggression before it is too late. Overwhelmingly, zoo staff have a passion for the animals they work with and the need to help save animals from the increasing threats of habitat destruction and overpopulation by humans. They invariably care greatly about animal welfare and strive at all times to keep animals healthy and well looked after.

If the work of zoo keepers was indeed the exploitation and torture of the animals it would be hard to find staff, retain morale and engage with visitors. Staff would demonstrate the many symptoms of working in careers that challenge individual morals; these are not apparent. However, this assessment is over-simplistic. Zoo staff who work with animals in suboptimal conditions may suffer from stress.

Generally, the people who work in zoos are educated and have made choices on their employment. They care for animals and strive

to accommodate their wellbeing. Most zoo professionals have long careers and in staff surveys at Melbourne Zoo show that they value their employment.

Visitors to zoos

We must also consider the people who visit and support zoos. These are the citizens of the location of the zoo; at many zoos 80% of patronage is local citizens. These citizens get the zoo they want and demand. Reflecting on the values and relations of people and animals, a well-run zoo in a sophisticated environment would not survive without good practices, as people would not visit or donate to the zoo.

As you approach a zoo you start to read the language of the community you are visiting; the very facade tells of the value placed on animals and children in the society. The quality of the facilities, from the car park to the toilets, tells of the willingness to invest in the care of visitors and the animals, and the education of children.

Zoos are funded through governments or through gate takings, or a combination of both. Where those in power put little value on the enlightenment of children, zoos suffer from poor funding. Communities that value the enlightenment of children ensure that zoos, museums and other cultural facilities are well funded.

All zoos share the characteristics of being high profile facilities visited by the general public. As public institutions, zoos offer insight into the opinions and attitudes of the community within which they are located. Zoos are informed by public opinion and to some extent shape that opinion. Zoos are often the most visible places for humans to interact with a wide range of other species, and through this visibility zoos are held to account for their treatment of animals.[21] In 2006, Melbourne Zoo and Taronga Conservation Society imported young elephants from a logging camp in Thailand. The visibility of the importation sparked debate and ultimately a court challenge on the permissibility of importing elephants.[22] The inability to hide transactions with big visible animals such as elephants creates a public profile for both zoos and animal campaigners.

Zoos are a place for thinking about animals and negotiating our relationship with animals. Over time, zoos have changed as people's

relationships with and understanding of animals has changed. Either as a reflection or as an influence, zoos say a lot about people's attitudes to animals.

The influence of zoos on public opinion is raised as a concern about zoos, in that they may normalise practices and attitudes. For example, 'by making captivity seem normal, zoos and aquariums hide the fact that forced confinement is cruel and brutal'.[23] Thus, it is argued, in normalising the use and captivity of animals, zoos promote and support the overall societal view that it is acceptable to use animals for our purposes. Irrespective of agreement with the argument, we can agree that zoos reflect and influence public opinion.

The great moral virtues and zoos

Cultural institutions may be seen to embody the virtues valued by a society. Art galleries display creative representations; museums display artefacts and scientific curiosity, and zoos display animals. In cultural institutions, social commentary and knowledge are on display in tandem with the collection. In the representation of various aspects of our world, cultural institutions embody various virtues through both what they display and how they display it. These institutions, like religion, are important in times of stress or hardship. People return to them to be reminded of what is important and to reconnect with societal values.

Zoos are venues where people can engage with their children about the great virtues that are generally beneficial to both the people who have them and to others; namely courage, temperance and wisdom.[24] Lessons from school and home are reinforced in a novel and interesting place, making use of children's natural interest in and engagement with animals. Through our actions and the actions of zoos we display the application of ethics, and thereby reinforce or contradict the moral upbringing of children.

At first glance a zoo visit may be considered to educate people on animals and the environment. Yet if we pause and consider the zoo experience, we see that zoos educate at a deeper level on the acceptable practices and virtues of a given society. Parents talk to their children about sharing, while watching young animals at play. They can discuss

courage and bravery while watching a scary animal, or speak of family love while watching a mother nurture her offspring.

The display and education of the great virtues at zoos is interesting and complex. Zoos are able to evoke both the best and worst in people. For each virtue there are vices, many of which are possible in zoos. Zoos create the stage across which people and animals interact, sometimes with virtue, sometimes without.

Courage

Visitor preference surveys show that the most popular animals in the zoos are the large and dangerous animals; what zoos characteristically refer to as charismatic megafauna. Humans are fascinated by the size, strength, speed and prowess of these animals. In many cultures, the rite of passage to manhood was proven through confronting and killing an apex predator. We squeal with fear and trepidation when encountering the brute strength and raw power of a dangerous animal. When they turn their gaze onto us, and remind us that there are other species with significant power, we are humbled a little and glad of the protection that glass or wire provides.

Elephants and their domination has been seen throughout time as a mark of human courage and strength. We honour and respect the skills that allow a person to tame a beast that could kill them with a single blow. Emperors rode on top of elephants to show their courage and power. Zoos are undergoing a change with respect to elephants. The practice of free contact, where keepers share space with elephants, is coming to an end, being replaced with protected contact where a physical barrier separates keepers and elephants. The key difference between the two management styles is that free contact is based on power and control, while protected contact requires respect and patience. With no recourse to physical contact, keepers must train the elephants through positive reinforcement for requested behaviours. With the reduction in full contact rolling out at zoos around the world, we see a change in our relationship with elephants, from beasts to be subdued in a show of power, to magnificent animals to be admired.

Melbourne Zoo took the decision to move to protected contact for the management of the elephant herd in 2012. Since the decision, the

way that we interact with the elephants has changed and the keepers tell anecdotal stories of seeing improved relationships between the elephants. Research into the movement and exercise of the elephants has shown no negative impact in the activity levels. Training sessions based on positive reinforcement are now conducted with public viewing, strengthening the understanding of the relationship between keepers and elephants.

In circuses, big cat performances were traditionally admired. The ringmaster was seen as courageous and skilful, entering the potentially lethal arena with tigers, lions and other large predators. Roadside attractions, shock documentaries and dubious zoos still trade on the attraction of people battling or interacting with powerful animals. In many cases the animals are disarmed: surgically, through training, or by drugs. The deception and cruelty that supports this trade is rejected by well-run zoos.

The zoo is the modern arena where skilled keepers display the power and strength of animals to the visiting public. Parents advise children on the vices associated with courage, the foolishness of picking up snakes, considering the risks of venom, the cowardice of hiding and crying in the face of a harmless animal. In a safe place, parents can engage with the virtue of courage. Melbourne Zoo runs courses in arachnophobia, facilitating knowledge of spiders and familiarising people with real spiders. Children confronted with insects and snakes pluck up their courage and extend their shaking hands. After the encounter they leave, full of adrenalin and recounting stories of their bravery.

Today the bravery associated with a zoo can be seen in the stances that the zoo takes on major environmental and ethical issues. In Europe, many urban zoos in cold climates have decided to stop holding elephants. They have bravely chosen the route of duty of care over institutional profit, and often they are rewarded for this bravery with increased patronage. Zoos which choose to engage with changing human behaviour run the risks of alienating visitors, governments and donors. But if zoos are to influence the behaviours and attitudes of a society, then they need to demonstrate bravery. Change at a societal level never occurs without courage.

Zoos that are operated virtuously will be courageous in their decisions about the animals that they hold and the messages that they communicate. Staff will act with the appropriate courage, not ignoring the perils of their profession, but not being scared of the work they do. Visitors will learn and share acts of bravery in confronting their fears.

Temperance

Temperance reflects appropriate restraint, or moderation in one's desires, particularly with regard to pleasure and pain.[25] Teaching children about temperance is aided by taking them to places of enhanced emotional content and schooling them on the appropriate reaction. Animals are a direct bridge to children, so we find books, movies and shows full of representations of animals. We can teach these lessons wherever our environment contains animals. The first experience of real, wild animals for urbanised children is often the local zoo. It is in this responsible role of introducing children to animals and facilitating an appropriate response that the role of zoos emerges more clearly.

Randy Malamud holds that, 'The substantial and essentially unchanged reality of zoos is that they remain prisons for animals and quick, convenient, sometimes titillating, but ultimately distorting experiences for people.'[26] If zoos are bad for the animals that live in the zoo, and it is wrong to experience joy and entertainment at the cost of another's suffering, then zoos distort temperance and are a form of insensibility. In this case disquiet and rejection would be the appropriate emotional reactions.

If the welfare of the animals can be accommodated, as arguably it can for most of animals, then it seems appropriate to take joy in seeing the wonders of nature up close, to marvel at the intricate patterns on a snake's skin or the incandescent colours in butterflies' wings. In a presentation arena, visitors gasp at the flight of raptors and applaud the swimming skills of seals. For many people, these wonders are not available to view in the wild. The young, the old and the disadvantaged may never see animals in their natural habitat. Wild animals, wary of humans, will choose to hide or retreat from humans, so little is seen of them in the wild. It is only these zoo animals, bred and conditioned not to fear humans, that can be seen, studied and appreciated.

Nonetheless the joy must be tempered, for only with gentleness and quiet respect can animals actually be enjoyed. Fast movements and loud noises will result in the animals seeking distance and hiding. So children are schooled to limit their open displays of joy, to sit still and appreciate beauty without noisy outbursts.

Wisdom

Wisdom is knowing the right steps to a good life, while cleverness is knowing the right steps to any particular end.[27] If zoos are to act with wisdom, their actions and decisions must reflect knowledge in providing positive experiences for the animals in their care. Further, zoos are able to help the community to understand animals and their role in enhancing people's lives. Deeply entrenched in this view is the need to know what makes a good life for an animal or human. Plausibly, zoo staff should gain knowledge of the important place of animals in a good, human life.

Decisions and choices must reflect the coming together of emotion and reason. Many decisions in zoos are difficult; many decisions evoke angst and challenge, ranging from which species to hold to major life decisions for individuals and well-loved animals. A zoo operated virtuously will develop ethical standards and approaches, allowing for intelligent and compassionate decisions.

Research plays a critical role in modern zoos. Early zoos did not know how to care properly for animals, and many animals died fairly quickly on being taken into captivity. In an attempt to prevent disease spread, zoos valued hygiene and an era of hard surfaces which were easy to clean followed. Even today many zoos have enclosures that are designed primarily to facilitate cleaning, rather than replicating the natural habitat or enabling natural behaviours of animals. However, through the employment of professional staff and a focus on collaborative research, zoos have greatly increased knowledge of animal physiology and behaviour. The closeness that zoos allow has dramatically improved knowledge of the animals' physical, emotional, social and psychological needs.

Zoos facilitate knowledge of animals and offer one of the largest outdoor education experiences. Zoos are places where visitors can learn

through interaction with zoo staff or through spending time observing animals.

Animals are an important part of knowing what it is to be human. Parents draw on animal characteristics to make examples to their children on behaviours and traits that are part of a good life or not. By combining moral arguments and lessons with facts and scientific knowledge, we develop and share wisdom about animals and their roles in our lives.

A positive relationship with animals seems to be a significant part of a life well lived. People and animals coexist; our homes contain pets and our environments contain wild animals living either in competition or in harmony with humans. Zoos allow people to have relationships with animals that they cannot or should not know in other ways. In this way, zoos contribute to a good life.

In order to protect species in the wild, well-run zoos collaborate with universities to gain knowledge on how humans can live with animals. Reducing human-caused threats to animals is critical if we hope to ensure the long-term survival of amazing creatures. Zoos are an important resource in community engagement and sharing the knowledge of how people can live with compassion and respect for other species.

Justice

Justice requires the same treatments of individuals with the same capacities. The way that we treat animals reflects on our sense of justice and the scope of inclusion. At a zoo operated virtuously, the treatment of animals will reflect the balance of justice between humans and animals. The prevailing paradigm holds that animals are property and hold few rights past the prevention of cruelty, pain and suffering. However, if we consider that animals have at least basic rights based on their ability to feel and be hurt, then we must include the interests of animals in the consideration of justice between individuals.

Yet even if justice is applied solely to humans, it will require the fair treatment of all people wishing to attend zoos to experience the benefits of zoo experiences. Protecting animals will act in the interest of future generations that also wish to see and experience a wide diversity of animals.

Zoos act to distribute opportunity, a core tenet of justice, through providing access to animals for all citizens. Many people are unable to visit the wild places where animals live. The weak, the young and the old would be denied the opportunity to see and marvel at animals. Further, the cost of travelling to remote locations and securing access to seeing wild animals is outside the scope of most citizens, and means that experiencing animals in those environments is an exclusive right of the rich. Zoos are part of the distribution of access and opportunity, providing easy access to animals at affordable prices. Zoos are often subsidised to ensure access for all citizens. Many zoos have open days for the citizens, discounted rates and deliberately low prices.

Intergenerational justice demands that future generations should be able to experience the multitude of animals that we take for granted. If we allow or cause species to go extinct, we unfairly deny future generations the opportunity to enjoy seeing and knowing them. Understanding that knowing animals is part of a life well lived, to be denied access to certain animals in the future, though the greed or carelessness of the current generation, will compromise intergenerational justice. Justice requires that we don't act in ways that prejudice people who come after us, and that we preserve the environment for their benefit.

Finally, there is the consideration of justice to the animals. As discussed in Chapter 5, 'Animal rights beyond welfare', some interests of animals are important and should as a matter of justice be accorded sufficient consideration. It is possible that animals on the brink of extinction should be afforded the opportunity of safe haven in zoos, thus providing a fair and just chance of survival for their species.

Other virtues

Virtue ethics provides many lists of virtues that are important to support and enhance the four great moral virtues. The nature of zoo operations means a large number of these virtues can be considered; I have, however, limited my discussions to five virtues of interest, namely: generosity, compassion, honesty, respect, tolerance.

Generosity

Zoos demonstrate, or at least facilitate, generosity through the giving to others what is yours. Children instinctively want to share food with animals. The wild animals frequenting food outlets at every zoo are testimony to children feeding the free-ranging animals. Many zoos make money from allowing patrons to buy food and feed animals. Their sense of largess is rewarded and the zoo covers some costs. Generosity is subjective, individual and spontaneous. Donations form a significant part of zoos' revenues, but more than raising funds they activate the desire to be generous to animals. The donation boxes encourage people to demonstrate their connections to animals through the expression of generosity.

Generosity requires acting in conformity with the requirements of love, morality or solidarity.[28] Well-run zoos are able to facilitate love and compassion between animals and humans, thus providing the opportunity for animals to be a target for generosity. Solidarity is important to understand that humans are part of a greater whole, to mend the divides between us and others. In their operations, zoos should avoid creating distance and barriers between people and animals, which erode solidarity. Rather, zoos should show how similar we are to animals, breaking the barriers that reinforce solidarity.

Generosity acknowledges the freedom of one's autonomy and the choices that this allows. Our self-esteem is linked to our ability to rise above mere survival, emotional response or self-interest, and to be generous in our thoughts and actions. How more impactful is it when our generosity is not just directed to others outside our immediate influence, but to others of different species? Much of Singer's criticism of speciesism is based on the failure to be generous in our contemplations of animals, putting our self-interest first. Through making donations of time or money, donors and volunteers display their generosity to animals.

Compassion

When humans hold a position of dominance over others, thereby creating a relationship of vulnerability and dependence, it is incumbent

on the virtuous to exercise great compassion. Many would argue that only extraordinary circumstances should warrant the domination of others. Yet life is not a level playing field. Not all are equal; hence the identification of compassion as a virtue to guide behaviour in unbalanced relationships.

Zoos provide an environment where positive or correct emotional responses, linked to rational principles, will lead to virtuous relations with animals. For example, if animals are mistreated in a zoo and children respond with unhappiness, they are displaying the correct response to abuse of animals. In contrast, when zoos allow visitors to touch an animal, we say 'be gentle' and then see the joy in a visitor experiencing a respectful, compassionate interaction. We reprimand those who would hit an animal or throw stones, reminding them that animals can feel pain.

An encounter with an animal that has the freedom of choice to leave if we act inappropriately is a powerful opportunity to learn respect for others. Feeding the giraffes at Werribee Open Range Zoo requires patience and slow movements; any sudden movement will scare the giraffes and they will move away. It is rewarding to see children stand still and move quietly, displaying great respect for these huge, gentle creatures, only to be rewarded by the attention of an autonomous being, bending down to receive a carrot from a shaking arm.

Well-run zoos show compassion for the animals in their care. They strive to improve facilities and practices based on the needs and the desires of each species. Well-run zoos employ compassionate people and dismiss staff who display cruelty.

Many staff members reflect compassion; they stay after hours to nurture sick animals, they hand-rear orphans, they strive at all times to improve the life of the animals in their care. But over-caring is a second vice, and too much care for animals runs a risk of becoming bad for the animals. Over-caring arises, for example, in a situation in which keepers and veterinarians may keep animals alive too long, treating ailments that are reducing the quality of life, due to their own affection for the animals. At extremes, people collect and hoard animals in conditions that are abusive. Domestic animals bear the brunt of over-care, through over-feeding and other inappropriate treatments.

Honesty

Douglas Adams visited many endangered species in the wild, and commented, 'I was struck again by something that was becoming a truism on these travels, that seeing animals in a zoo was absolutely no preparation for seeing them in the wild – great beasts moving through seemingly limitless space, utterly the masters of their own world.'[29]

Zoos are a poor reflection of the wild; at best they are a brief glimpse of the magnificence of nature and the animals that share the planet. By staging the way that people can see and access animals of wild species, we must consider if this is a deception or an honest encounter. Humans are skilled at creating and appreciating metaphors. We view fictional theatre and movies without questioning if that which we see is real or a figment of the imagination of a talented artist. Sometimes the lines blur, and we are either delighted with the clever trickery or outraged at the deception.

The challenge for zoos is the strange place they occupy; not fiction and not reality. Zoo animals have been contained for many generations, over hundreds of years; they are accustomed to human company and conditioned not to fear humans. Zoo animals that are prey species live in sight of predators, comforted by fences and moats, quickly learning that their predators pose no threat. Zoo animals are a strange construct, not wild and not domesticated, yet real examples of their species. Furthermore, zoo animals are displayed in fictitious settings, surrounded by fake rocks and trees, with gardens planted, manicured and shaped to reflect a microcosm of the range and habitat of the animals' origin. Many zoos paint friezes on the walls to try to lend credibility to the setting. This does not fool the animals that they are in their real home; neither does it fool the visitor. We know what we are seeing: zoo animals in zoo habitats. Yet visitors love the theatre of zoos; boats, vehicles and landscapes cleverly dressed to allow for a journey of imagination, to take them on a journey to faraway places. Zoos stir dreams of exotic animals in exotic locations.

Zoos claim to both entertain and to educate, creating a place that can be applauded for access to real animals and derided for the display of them in an artificial setting.[30]

Zoos display animals in captivity, in a relationship of dependence, providing a view of nature with human's role as the most powerful

animal. There are some who would argue that this is an honest interpretation of the world, while others challenge that we should not support this paradigm.

Modern enclosures are designed to minimise this interpretation; elevated viewing structures are avoided and animals are presented in environments that try to resemble natural habitat rather than in a cage. The first landscape immersion, for gorillas, at Woodland Park Zoo, Washington, was constructed 40 years ago. Since then zoos have attempted to modernise their enclosures and displays. Well-run zoos allow the animals choices to retreat from vision and opportunities to hide from visitors.

While zoos do hold and display animals, they are able to do this in ways that depict respect and wonder. Knowledge and the skills of zoo professionals have increased along with the field of research into behavioural needs and enrichment of the captive experience. It is no longer adequate to keep animals alive; their needs and desires should be respected and, where possible, accommodated.

Zoos propose that they facilitate an honest interaction with real animals. Malamud rejects this, claiming that 'While people need to observe and commune with other animals, this does not justify zoos' existence; such communion happens with less spectacle but more sincerity and effectiveness outside zoos.'[31] However, the claim that 700 million people could access wild places and wild animals is naive at best. To see animals in the wild requires a level of conditioning, to reduce fear of people, which erodes the wildness that is valued. More concerning is a trend for tour operators to adapt animal behaviours to guarantee an 'Animal Planet' experience. We see an increase in chumming for sharks or putting out food for predators, to guarantee tourists will see the target species.

The otherness of animals is a fact; what speaks to virtue is how we relate to others: accepting and with compassion, or with fear and rejection. Zoos play a role in bringing wild animals into the sphere of concern of urban people. Once in this sphere of concern, the way animals are displayed and held may impact on their value.

Zoo critics argue that the biggest deception is that zoos claim conservation outcomes that are over-inflated. Zoos raise funds to support

field work and the protection of wild habitat, but only in recent years has the zoo industry started to collate the efforts of zoos in conservation. The result is in the region of US$350 million per annum contributed to field conservation.[32] In a direct comparison with other conservation organisations, this is significant. Greenpeace[33] raises $60 million per annum, and Conservation International[34] raises $140 million.

Well-run zoos are now targeting to contribute between 3% and 5% of their revenue to direct conservation, namely the support of field conservation and habitat protection. If every country in the world or every large corporation applied the same philosophy to the protection of the environment, then we would be in a considerably enhanced position. An amount of 3% of the gross domestic product (GDP) dedicated to preservation of habitat would go a long way to reversing the current trends in environmental destruction and threats to species.

Zoos are not the only commercial organisations that make contributions to conservation. Coca-Cola Inc.[35] has recently entered a partnership with World Wildlife Fund to support polar bear protection. Coca-Cola Inc. has committed US$2 million to the project and will match consumer donations to the maximum of an additional $1 million, against total revenue of $46 billion, or 0.0065%. Rio Tinto Limited[36] is a major mining operation, with 15% of their operations in regions of high biodiversity. Considering that the total revenue per annum for Rio Tinto Limited is $60 billion, even a small percentage contribution would be significant. Their contribution to the environment is largely expressed in negative terms, trying to limit impact, rather than make a positive contribution.

As businesses or commercial undertakings working with animals and committed to conservation, the amount of funding provided by zoos to direct conservation is significant, and calls that this is deceptive are misguided.

Respect

One of the concerns with zoos is that in some way they undermine respect for animals, either through the action of holding them or through overexposure to them. Zoos impact on the value of animals, particularly the extrinsic value of animals. If zoos are found to destroy

the value of animals it may be argued that zoos are not respectful. However, zoos may actually increase the value of animals, bringing them into a place where they are accessible to millions of people so that their nature and role can be understood.

The value of a wild animal can be assessed in several different ways. There is the aesthetic value of seeing an animal in its natural environment. Animals fill ecological niches, providing ecosystem services, such as pollination or pest control. Many species provide economic or extrinsic value, by example, through the taking of their fur or meat. Philosopher John Hadley argues that there is more to the consideration of animals than just their value to humans and their need for humane treatment. Gary Francione maintains that 'we have no moral justification for treating animals as replaceable resources – as our property – however "humanely" we may treat them or kill them.'[37]

In a zoo, natural roles and values are replaced with other values. A zoo animal is a representative of its species; the way that it represents the species may be advantageous or detrimental to the greater species. A zoo animal that inspires a campaign to protect habitat could be seen to provide significant contribution to the success of its species and habitat. Flagship species and programs also work to secure the entire habitat and thus fulfil a greater ecological role than their evolutionary niche. Zoo animals are studied in considerable detail and much is learnt about their physiology and their behaviours. This knowledge is again important to the success of their species and in certain circumstances may save species from extinction, such as the search for vaccines to combat facial tumours in Tasmanian devils.

Aesthetics of animals may actually be enhanced through close display. While we have some joy from a fleeting glance of a wild animal at a safe distance, there is a different joy in being close to an amazing animal, sharing a touch or a moment of contact where we look deep into its eyes.

Zoos argue that there is value from knowing and interacting with animals.[38] The scope of education programs in zoos has changed over time, building on generations of education and learning and access to other channels of education, such as books, documentaries and the internet.

However, not all animals are represented in a positive way. Randy Malamud proposes that animals in zoos are not real versions of that animal. He claims that in removing them from their context they fail to have value, thus nothing can be taught or learnt from seeing zoo animals. 'What zoo goers see in cages actually represents a kind of human contrivance immeasurably distant from real animal life.'[39] He holds that the depictions of nature and biodiversity are so skewed that this gives an erroneous impression of the world. The only lessons are the subjugation of animals by humans. It is further argued that nothing can be learned by 'knowing' animals in zoos, as the animals being studied are not real animals. This is clearly not true, and there are certainly things we can know from seeing animals in zoos. Much of our knowledge of animals' physiology and behaviours comes from zoo observations. Yet it does seem correct that something is lost when we see animals caged.

Ralph Acampora argues that overexposure to animals distorts their value,[40] that zoos make the viewing of animals too easy and effectively a human construct. The animals suffer from being presented in a distorted way and the viewer is misled. He believes that large, dangerous animals engaging in tame behaviours portray the wrong impression of their strength and role; the human captors showing domination and control reinforce humans as the apex predator. (See 'To Touch or Not to Touch?' on p. 219.)

Acampora proposes that zoos are like pornography, making animals available for easy viewing. He says, zoos cheapen and devalue the pleasure of seeing animals.[41] In the early days of zoos, each new arrival was paraded for novelty. Many died through lack of knowledge or over-attention. Shy creatures were displayed in barren cages for all to see. This has changed with knowledge. Good facilities offer retreat spaces and sufficient cover for shy creatures. Wild collection of every species has, to a large extent, been replaced by a core group of animals suited to life in zoos. A well-run zoo should avoid the temptation to overexpose species and should not promote seeing them with puffery and blatant pageantry.

Yet familiarity does not always breed contempt.[42] Ongoing acquaintance, familiarity and intimacy can also breed compassion and respect. Fear and hatred are easier to maintain in ignorance than face-to-face. The role of exposing children to the correct paradigms and

interactions is important, while the influence of bad engagement is very difficult to remove. Zoos bring children and communities face-to-face with animals that are portrayed in a multitude of ways in literature and art. In real life the animals are often more accessible and more impressive than the fictional representation. Today, children grow up in cities, removed from nature, forests and wild animals. They learn of animals through television, the internet and books. At the zoo they are introduced to the real animal.

I watched a four-year-old standing at a fish tank watching the clown fish. He squealed with delight, 'Nemo!' Then something caught his eye, 'water?' He was amazed. 'Nemo, water, swimming.' For half an hour he kept leaving the tank and returning. He was experiencing the reality that his beloved, talking fish lived in water and swam. All the times he had watched the movie he had developed a distorted view of the reality of fish. At the zoo he learnt for himself one reality of fish.

Tolerance

Tolerance allows for the consideration of others, for understanding differences and accepting them. Tolerance requires that we overcome personal interest. Comte-Sponville calls tolerance 'a small but necessary virtue for those that are neither wise nor saintly.'[43] While in an ideal world we would love and respect animals, tolerance is the minimum we should display to animals we neither love nor respect.

Many people living in Melbourne have an abiding dislike of sharing their homes and gardens with brushtail and ringtail possums.[44] While they pose no threat to humans, possums are noisy and messy neighbours. It is only through tolerance, and strict regulations on the treatment of possums, that Melburnians live peacefully with them.

It is generally considered that the greatest impact in the erosion of understanding and tolerance for animals is the urbanisation of humans. People have become increasingly disconnected from nature, animals and ecology. The alienation and distance created between people and animals through urbanisation has resulted in our lack of knowledge, empathy or understanding of animals and their needs. We have seen the industrialisation of agriculture as people are removed from any knowledge or appreciation of the animals and their suffering.[45]

While zoos may have played a role in the objectification of animals, seeing animals as things rather than living beings, zoos have also played a role in personifying and humanising animals. Zoos give animals names and provide the public with life stories. Animals become citizens and are granted awards. In Johannesburg, Max the crime-fighting gorilla was 'Newsmaker of the Year' for 1997. Max became a sensation when he was shot while grappling with an armed robber who entered the gorilla enclosure while being pursued by the police.[46] People recall individual animals with affection, having grown up alongside news and stories about them.

The act of containment creates barriers between humans and animals, for the safety of both. These barriers may serve to reinforce the otherness of animals, and perhaps reinforce our perceptions of them as dangerous and worthy of elimination.

Yet, zoos are also able to bridge the gap between a species and an individual. They bring animals onto a scale where humans can see them and start to appreciate their likes and dislikes. While we get a sense of the ape-ness of a gorilla or the dangerousness of a lion in the zoo, it is diluted through humanisation of the animals on display, tamed and acclimatised as they are to people. Does the animal suffer as the subject of this distorted view, or is it the humans that suffer as they fail to see the magnificence of the animal in their gaze? It seems to me that in a strange way we are both enriched by our encounter with animals and yet poorer for not seeing their full nature. The frustration is that when animals are so close we find their wildness elusive.

The survival of many species on this planet depends on humans compromising their desires and needs to allow for theirs. Without tolerance and respect, this is implausible. When we don't know animals, we don't care about their fate. Zoos can and do promote animals as creatures to be embraced and tolerated, dispelling myths and unfounded fears with knowledge and proximity.

Zoos and virtue ethics

Virtue ethics provides a different way to consider zoos. By examining what constitutes virtuous operations we can see the multitude of attitudes and values that are impacted through zoo operations. Zoos

mirror and influence the values and attitudes of their community to animals.

Zoos attract people who like animals and want to spend time with them. Most act in good faith and in the best interest of the animals. The zoo industry does not reflect the challenges and social problems evident in industries that are conflicted with moral dilemmas. Employees and visitors reflect a cross-section of society skewed towards people who care for animals and children.

Zoos are good places to engage with children about what it means to be virtuous and how to live well. Many of the great virtues are evident at zoos, providing engaging and novel opportunity to discuss ethics and how we should live.

Yet a tragic dilemma remains that requires our attention, namely the potential loss of species through human action.[47] The increasing human population and increasingly consumerist lifestyle is impacting on habitat and animal numbers in a significant way. While zoos attract virtuous people to work, visit or learn, they are increasingly working to defend, protect and restore wild populations against the impact of humanity. But no actions or solutions are without impact. Every intervention affects some individual, human or animal, often in a negative way. We need to turn to environmental ethics to understand the complexities of actions in the future if we are to avoid this tragedy.

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8

Environmental ethics

> A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise.[1]

Introduction

Zoos play a role in the conservation of wild animals and wild places. Every year zoos contribute resources to support field conservation, assist with the recovery of species through breeding programs, and raise awareness of conservation and environmental issues with visitors to zoos. Their commitment to conservation and the protection of the environment brings zoos into the realm of environmental ethics, and most starkly into the conflicts between environmental, human and animal interests.

Saving endangered species comes with a new set of ethical challenges, primarily the costs imposed on the individuals of a species that will be enlisted into the recovery program. The urgency of the current wave of human-induced extinction provides scope for the captive holding and breeding of the most endangered species, safeguarding future options. The dire circumstances of species in the wild require extreme actions, plausibly even the limitation of freedom and life, to prevent the irreversible extinction of species.

Individual animals may be removed from the wild and held in captive conditions while threats in their habitat are addressed. In the first instance it looks as if those individual animals may suffer from their removal from the wild; however, deeper analysis reveals that the wild may be hostile to that individual animal and its species. Often the welfare interests of individual animals are enhanced by their removal from the wild. If the program is successful, a day will come when

animals will be released from captivity, where they have been well cared for and protected from the hardships of wild living. The release of captive-bred animals may result in a reduction in their welfare and even death.

Mary Midgley[2] holds the view that the extinction of a species is a great evil and that it is inconceivable that anyone would knowingly or deliberately allow a species to go extinct. While extinction in the past was a natural part of the cycle of evolution, the rates of extinction and the causes of extinction experienced today are largely of human origin. It is our rapid population expansion and our demand for goods, services and entertainment that are driving many species into marginal habitats and towards extinction.[3]

There is debate about the exact nature of extinction. It seems that extinction is bad, but so are poverty and disease. Will humankind really mourn the loss of the majority of species? Will humanity even feel the impact? Some argue that extinction can be seen as a part of the natural process of the creation and destruction of species. While extinction may be bad, wrongness lies in human action. It is argued that there may be no wrongness in the perpetuation of a natural cycle in which humans are merely replacing the previous triggers of extinction, such as meteor strikes or volcanoes.

Others argue that the wrongness lies in the human action and intent. Unlike volcanoes or meteors, we are not ignorant of our actions and their impact. It seems wrong when we drive animals to extinction for trivial human interests. It seems that if humans have created the conditions that will bring about the extinction of a species, then humans should be responsible to act to prevent such loss. When we hear about or experience an extinction event, the loss of the last representative of a species, there is a deep sense of loss compounded by the absolute finality of extinction. I have a recording that Zoos Victoria made on 26 August 2009, the night that the last Christmas Island pipistrelle flew. The call of this small bat is haunting, a chirp that echoes through your soul. When I play it for an audience the room falls quiet, people shed tears, and the absolute tragedy of extinction creeps into the room.

In a world in which extinction is considered the ultimate evil, ahead of human economic interests or property rights, the actions of

conservation organisations could be morally contested alongside the moral trade-offs between people. Unfortunately this is not the world we currently inhabit, and most human interests, even trivial interests, outweigh the interests of animals and ecosystems. Today the best chance for animals is the alignment of their interests with those of humans.

Environmental ethics has the goal of protecting the stability and function of ecosystems, and demands interventions when the ecosystem is threatened. In many cases the interventions will impact on the interests of humans and individual animals. Such demands are confronting to our traditional views of the world. To be successful in addressing the challenges of individual interests, human or otherwise, environmental ethics must guide human actions by requiring consideration of the interests of all parts of the ecosystem.

In addressing the ethical justification for zoos, examining if they are still morally desirable, we are faced with the ongoing question: is it ethically defensible to contain animals in a zoo? In the past the education and entertainment of people, combined with limited knowledge or acknowledgement of animals' capacity to suffer, seemed sufficient to answer this question in the affirmative. Today we are better informed about the capacities and emotional lives of animals, and we demand that if animals are to be contained they must not suffer and must experience positive welfare states. I have shown that the entertainment and education value of zoos still outweighs the costs, but the current environmental challenges and the expansion of moral consideration called for in environmental ethics provides further grounds to believe that zoos will continue to be important.

The need to preserve and care for animals and species displaced by human activity provides a clear and compelling ground for zoos to exist and plausibly justifies the costs, both human and animal, of the continuation of zoos. While zoos talk of saving endangered species, I would propose that endangered species are saving zoos.

Environmental ethics

The place to begin exploring environmental and ecosystem ethics is with the Land Ethic by Aldo Leopold, in *A Sand County Almanac*.[4] In Land Ethic, Leopold established the twin principles that dominate

environmental ethics, namely that nature's value is not limited to its value to humans, and that the biotic community is the centre of value. For Leopold, animals are important in proportion to their contribution to the good of the larger biotic community.

The development of human culture and what we view as modern society has been linked to our ability to harness and use the environment. Nomadic hunter-gatherers used small amounts of natural resources and limited their impact by moving with the changing seasons and abundance of resources. Agriculture saw humans settle in fixed locations and the beginning of the manipulation and control of natural resources; streams were dammed and fields cleared. With exponential population growth following the industrial revolution, we have seen the emergence of the need for increased use, and exploitation, of the environment and natural resources. It seemed that the environment and all that dwell in it were a resource to be used for our needs, advancement and entertainment.

However, we have come to realise that nature is not a limitless resource and our modern demands far exceed the capacity of the environment to regenerate. The simplistic notion of natural resources as limitless and plentiful has been shattered. The widespread use of fossil fuel has warmed the planet and we are seeing irreversible trends in changes to the environment.[5,6]

With over seven billion people all drawing on the environment, we are destroying natural resources faster than nature can replenish them, rapidly approaching a point of climate change from which we will not be able to return.[7,8] Two hundred years of industrialisation and rampant consumption have depleted natural resources, flattened forests and polluted rivers and oceans. The ethics that have allowed humans to live together in large cities and complex social structures have failed to guide the ways that we use and respect nature. The entrenched economic model of power and profit maximisation has dominated, limiting fairness and justice in our relationships with other people, ignoring the wider frame of other species and even future humans.

As we have developed and tried to understand the world, humans have reduced complex ecosystems to bits and pieces. We see animals,

plants and a multitude of inanimate objects as fragments and curiosities, not a profoundly important and fragile system that enables our survival. Piece by piece we have been able to overrule the interests of others. On a case-by-case basis we consider the needs and desires of humans against a small part of the ecosystem, an animal, a tree or a rock. Inevitably human interest wins, and each time we destroy another piece of the environment. Each conflict is argued and won for the human side, but by the time we really understand, we will see that we have lost the planet.

The big work in understanding the planet and ecosystems as integrated and necessary is relatively new. Philosophers have debated right and wrong in humans for thousands of years, but we have only come to know the complexities of our environment in the last 150 years. So it comes as no surprise that traditional ethics are challenged by the debate on how we should respond to the environment, how we should rise above our personal interests and consider the planet. Two approaches emerge: to reconsider the application of traditional ethics in the light of our new knowledge, or to develop a new, more inclusive moral framework to consider environmental ethics.

Ethics challenges us to think how we are to live, what it means to act well or badly. William Adams proposes that 'Conservation debates are not really arguments about nature, but rather about ourselves and the way we choose to live. They are moral debates, about the way we cope with our own demands of each other and the biosphere.'[9] Based on our improved understandings of animals, ecosystems and the interactions between systems and biodiversity, environmental ethics challenges us to expand our sphere of consideration, to all humans, to animals, and even to include the full extent of the environment. At its most basic, environmental ethics challenges us to think of ethics in a non-anthropomorphic frame. Contested rights and conflicting duties are multiplied when we extend the sphere of moral concern to the full biotic community, and our obligations become so much more onerous.

Environmental ethics is currently not a united theory but rather is largely concerned with the application of ethics to several moral questions related to the environment. Through discourse it becomes apparent that traditional ethical frameworks may not be adequate to

handle the ethical challenges presented in discussing environmental ethics. It is expected that some new ethic may emerge that will enable us to deal better with ethical questions that cover many species, multiple generations and even protect complex ecosystems. A nature ethic must take into account the ecological communities and processes within which a variety of creatures, including humans, are embedded.[10]

A problem facing environmental ethics is the complexities of animals' value, interests and rights. While it is complex to talk of duties and obligations between humans and animals when animals are in a direct relationship with humans, it becomes far more complex when animals have no direct relationship with humans yet humans impact on animals and their environments. While the most agreed moral stance with respect to individual animals is that it is wrong for humans to cause unnecessary pain and suffering to animals, once the scope of concern is expanded the extent of the impacts and the knock-on effects become unwieldy and onerous.

J. Baird Callicott argues that animal liberation and animal rights give us no guidance when considering the large, ethical challenges of ecology.[11] The focus on the individual either as the holder of intrinsic value or as a being capable of feeling and suffering doesn't help with considering endangered species and plentiful species, management of pest and invasive species, and natural ecosystems and habitats. Callicott's position has inspired discussions in environmental ethics to investigate possibilities of attributing intrinsic value to ecological wholes, not just their individual constituent parts.

An emerging response to this challenge is compassionate conservation,[12] which seeks to combine consideration of animal welfare and conservation. While a new field of study, compassionate conservation may provide rich grounds for a new way of considering environmental ethics.

Much of the last three decades of environmental ethics has been spent analysing, clarifying and examining options to extend moral concern beyond humans. Yet the analysis and clarification is challenged in dealing with the difficult dilemmas that face environmental interventions. If a theory is broad enough to consider all interests, it is

unable to provide practical guidance. Thus while it is held that human-caused destruction is on the rise, we find ourselves without an agreed ethical framework that is adequate to address the complex problems of habitat and resource shortages. As with animal ethics, we find a range of approaches but no winning strategy.

Extension of moral concern

It has been proposed that environmental ethics can provide guidance in environmental discussions by expanding moral consideration. For humans, the expansion of moral consideration would necessitate the consideration of the impact of the environmental degradation on people removed in space and time. We will see an increase in concern for remote people impacted by decisions. It will be increasingly difficult to limit ethical debates to those directly impacted as the whole planetary system is impacted by climate change, pollution and disease. Increasingly, we see action in one part of the world resulting in harms in another.

For example, carbon emissions in developing nations result in increased global temperatures and resultant sea level changes, which threaten communities far removed from the source of carbon emissions,[13] while smoke from palm oil and rainforest fires in Indonesia is creating haze throughout South-east Asia.[14]

We also have to consider the impacts of our actions on future humans; it is, after all, our grandchildren who will suffer the full impact of our decisions. The disappearance of species, changed environment and destruction of old-growth forests contribute to the likelihood that future generations will have impoverished experiences of nature.

After including all humans, moral consideration can be extended to animals. As we have seen in previous chapters, animals have interests and needs. It helps to remember that the environment is not an empty space, but rather a complex network of animals, other living things and objects, interacting in a variety of ways. Each action we take is liable to impact on an animal in some way. The paper we write on is made from fibre harvested in forests, killing thousands of animals that lived in the forests, and the bleach used to make the paper runs into streams, killing

micro-organisms and potentially harming fish. (In recognition of the impact of publishing, this book is printed on Forest Stewardship Council (FSC) certified paper.)

We are challenged to find ways both to understand the impact of our actions on animals and to know how to act appropriately. Where we have created relationships of dependence or vulnerability, human responsibility to animals is obvious.[15] But for wild animals, duties and obligations arising from human actions may be more complex.

With the expansion of humanity, most environments now bear the imprint of human action. Actions in our homes each day, what food we buy and how we use resources, have implications for animals remote in space and time. As we consume water, trees and plants, we change the environment and impact the creatures that live there. Extending moral concern to animals in the wild will no doubt impact on the freedoms humans have enjoyed with respect to use of animals and natural resources.

Continuing to expand moral concern, we can acknowledge that all individual living organisms are important, and not just conscious individuals count. Once we recognise that interests are not always tied to conscious experience, the door is opened to the possibility of non-conscious entities having interests and thus demanding moral consideration. Albert Schweitzer's influential reverence for life ethic[16] claims that all living things have a 'will to live' and we should act in ways to protect this will to live. To include trees and plants in moral consideration seems a step too far. While we may feel a great sense of loss experienced when we see the destruction of great swathes of old trees, it would be better placed to view this destruction in the same manner we view vandalism as the loss of beauty and value, rather than needing to extend moral concern to all living entities.

The final step in the extension of moral concern is to consider holistic entities. Aldo Leopold's land ethic demands that we stop treating the land as a mere object or resource, but grant moral consideration to the land community itself. Callicott proposes the land ethic can be seen as an injunction to broaden our moral sentiments beyond self-interest, and beyond humanity, to include the whole biotic community.

Once moral consideration has been sufficiently extended, we find two significant problems. The first is how to make any real decisions when so many competing interests abound. If we recognise the need for moral consideration for every living thing, and even ecosystems that are not living, it is unlikely that we will be able to formulate any meaningful moral obligations. But without incorporating all living organisms, we run the risk of the individualistic stance that has dominated and negates the important ecological interdependence of living things.

The second problem is what to do about humans? Humans are the most over-abundant and destructive species on the planet. Rational and logical environmental ethical discussion will lead us to the completely unpalatable conclusion that it is obligatory to reduce the human population to save the environment. This has been called environmental fascism, and is a problem for all who would strive to do what is right for the holistic environment. It will not be acceptable to argue that we should kill or allow people to die to save gorillas or endangered frogs. At best the consideration of the full ecological community may allow for the termination of trivial interests of humans in consideration of broader landscape interests.

A new environmental ethics framework

The dissatisfaction with trying to fit environmental concerns into traditional ethical frameworks has led to the emergence of various radical ecology theories – deep ecology, social ecology and eco-feminism.[17] These theories strive to find a new model requiring fundamental changes in both our attitude to and understanding of reality and value, both philosophical and political. Freya Mathews provides an excellent summary of the appearance of environmental philosophy and the various frameworks that have been debated over the last 40 years.[18] To date, no single theory has emerged as able to adequately deal with the complexities of inclusion while still providing an adequate assessment of options.

Shallow ecology is about humans and our impact on the environment, such as the impacts of pollution and resource depletion.

Shallow ecology is a movement to protect and preserve nature for its value to humans or purely anthropocentric reasons.[19] To achieve shallow ecology, stewardship and care are advocated.

Deep ecology[20] demands that an entirely new worldview and philosophical perspective replace the destructive philosophy of modern industrial society. A fundamental principle of deep ecology is that the value of biodiversity is independent of human value; this opens a whole debate on what is intrinsic value and where it is located: in individuals, in species or in ecosystems. Deep ecology places humans within nature, not separate from nature. Critics of deep ecology argue that it is just too vague to address real environmental concerns. Further, the conflict between seeing people as part of nature and also trying to secure special treatment of humans has drawn critics.

Social ecology[21] identifies that the problem is the current Western system of ethics and the focus on rational, autonomous individuals. Environmental problems are directly related to social problems, which occur when both human beings and the natural world are treated as mere commodities. To develop and prosper, it is argued that we need to remove human domination and hierarchies, replacing them with interdependence and holism, replicating natural systems. Opponents caution that there are dangers in drawing inferences about how society should be organised from certain facts about how nature is, since much of nature has evolved in response to specific circumstances and is not a model for human ethics.

Eco-feminism[22] points to a link between social domination and the domination of the natural world, and calls for a radical overhaul of the prevailing philosophical perspective and ideology of Western society. Rationalism has created domination over women and nature, and it is argued that solutions for women may also accommodate consideration of nature.

Despite the various discussions and debates over 40 years, no single unified approach has emerged. Freya Mathews suggests that 'a global ethic of Nature, if it is to come into being, will take a pluralistic form, in the sense that it will appeal to a variety of principles and will not be reducible to any single underlying principle'.[23]

The extinction crisis

In 2009, Australia witnessed the extinction of the first mammal species in 60 years.[24] The species was a small, unattractive bat, called the Christmas Island pipistrelle. The decline was recorded and observed over a nine-year period. The primary threat was an invasive pest, introduced by humans, called yellow crazy ants. The ants invaded the bats' roost areas and ate the bats alive. The bat story raises all the dilemmas posed in environmental ethics. The cause of the extinction was not natural, it was human induced. The response of eliminating the ants was considered prohibitively expensive. Insectivorous bats are hard to hold in captivity. For many reasons, the decision to act was left too late. Many people are oblivious to the disappearance of this bat, but we should worry. Bats are important pollinators and they hold insect numbers in check. Each time we lose a species, we lose another part of the whole. We just don't know which one will be the tipping point, or the consequences that will follow.

In 2010 the Secretariat of the Convention on Biological Diversity[25] assessed the state of the environment and ascertained that 'the principal pressures leading to biodiversity loss are not just constant but are, in some cases, intensifying'. Species which have been assessed over time were shown to be, on average, moving closer to extinction, with the worst declines in amphibians and corals. Biodiversity underpins our water, food and air, and the pressures on biodiversity are bound to impact on all life on Earth.

The complete finality of extinction adds urgency to interventions. As Trevor Bradley Greive[26] says, once they are gone, 'nothing you can say will change this. Nothing you can do will bring them back.'

The extinction crisis requires ongoing and concerted action. The actions taken over the next decade or two will determine if the relatively stable environmental conditions, on which human civilisation has depended for the last 10 000 years, will continue. Failure to act means that many ecosystems might fail, and it is uncertain if there will be the capacity to provide for the needs of future generations.

While protecting and enhancing the environment (by ensuring clean air, clean water and magnificent landscapes) seems like a good

idea, it is the impending extinction crisis that compels us to act at global, local and species levels. It is the extinction crisis that compels zoos to reconsider their role and to commit to a transformation into conservation zoos. Just as an understanding of sentience compels improvements in animal welfare, our understanding of the impending extinction crisis compels improvements in conservation outcomes.

Three approaches are envisaged to reconcile the eco-centric and individual-centric approaches. First, we can start with individuals and build up to the ecosystem view, understanding that a healthy environment is composed of healthy individuals.[27] Alternatively, the opposite approach is possible: what is good for the environment will, on average, be good for individuals. Finally, a new field of study is emerging in response to advances in the conservation imperative and understanding of animal welfare: the field of compassionate conservation, which considers both environment and individuals simultaneously.

Compassionate conservation

An emerging discussion that has implications and potential for zoos is the field of compassionate conservation. A Compassionate Conservation Symposium held in Oxford in 2010[28] proposed a new thinking that conservation and animal welfare should be considered jointly. The symposium brought together scientists and practitioners from a range of disciplines to examine topics such as animal welfare in field conservation, captive animal welfare and conservation, international trade in live animals, and the conservation impacts of wildlife rescue, rehabilitation and release. The papers make for interesting reading and flag areas of concern or potential risk for all conservation organisations.

In 2013 the Centre for Compassionate Conservation was established at the University of Technology Sydney. The centre explicitly focuses on improving the welfare of wild animals, starting with considerations of the over-abundance of kangaroos in Australia.[29]

Compassionate conservation calls for the consideration of sentient beings and the harms inflicted on them in delivering conservation outcomes. The need to cull animals may be warranted to address issues

of over-abundance, but the actual killing should be done in ways that are consistent with scientific understanding of sentience and suffering.

Excitingly, early work identifies the potential to align individual welfare and species recovery, for example where supplementary feeding has increased wild populations or where released captive-bred animals thrive, gaining weight and fitness.[30]

At this stage, compassionate conservation is anti-zoo. In the opening address of the symposium in 2010, Will Travers states, 'By rejecting the zoo concept, a model that, with few exceptions, wastes money, effort, time, intelligence and, ultimately lives – by rejecting the conservation claim of a multi-billion dollar global industry – as Born Free still does today – it was incumbent on us to identify the alternative. The answer is conservation in the wild – a far more complex, far harder but ultimately more rewarding prospect.'[31]

Zoos need to address the criticisms and change their practices. Good zoos must reject any notion that the impending crisis will forgive practices that inflict cruelty and suffering. In 2014 an animal welfare conference held at the Detroit Zoo dedicated numerous sessions to compassionate conservation.

At first glance the ability of zoos to respect and care for individual animals seems to be in sharp contrast to the actions required to save ecosystems, killing pest species, culling over-abundant animals and placing animals bred in captivity into high-risk wild environments. At the very least I believe that compassionate conservation warrants more investigation and attention; at best zoos will step up to the challenge of becoming compassionate conservation zoos.

Conservation zoos

'If zoos did not exist, then any sensible conservation policy would lead inevitably to their creation.'[32]

Zoos enhance people's appreciation and understanding of the beauty of the biotic community. By bringing animals into the sphere of concern of humans, zoos increase the likelihood of humans taking action to protect and preserve animals and their environments. Further, zoos act directly to hold endangered species and participate in recovery

programs. Zoos contribute millions of dollars annually to field projects, protecting habitat and reducing threats to species.[33]

In the book *Last Chance To See*,[34] Douglas Adams interviews Don Merton, a bird conservationist in New Zealand. Don talks of his concerns for the flightless parrot named the kakapo. Asked about the long-term prospects for the bird, he answers, 'Well anything is possible, and with genetic engineering, who knows. If we can keep them going during our lifespan, it's over to the next generation with their new range of tools and techniques and science to take it from there. All we can do is perpetuate them in our lifetime and try to hand them on in as good condition as possible to the next generation and hope like heck they feel the same way about them as we do.'[35]

The conservation challenge for zoos mirrors the comments of Don Merton. Zoos must strive to keep the remaining representatives of the most challenged species alive, to ensure that their situation is as good as possible and to make sure that the next generation care.

Zoos promote conservation and work to secure wild places and habitat for wild animals. Yet it is widely held that zoos have the potential to do more. Zoos need to outgrow their past, based in awareness and entertainment, and become real conservation organisations that demonstrate compassion for all living beings. As Stephen Keller observes, 'zoos are contested, unsure of what they are and unable to live up to their full potential'.[36]

Mary Midgley identifies that 'People in general have perhaps thought of animal welfare as they have thought of drains – as a worthy but not particularly interesting subject. In the last few decades, however, their imagination has been struck, somewhat suddenly, by a flood of new and fascinating information about animals. Some dim conception of splendours and miseries hitherto undreamt of, of the vast range of sentient life, of the richness and complexity found in even the simplest creatures, has started to penetrate even to the least imaginative.'[37]

Supporters of zoos advocate that zoos play a valuable role as places of learning and discovery by putting animals clearly within the reach and understanding of the wider community. It is held that people only value what they know and will only save what they value. This argument

gives zoos licence to display a wide range of exotic animals, which are seen to help the species through inspiring people to save their species.

As a driver of media awareness and news stories, zoos are able to influence a significantly larger community than the direct visitors to the property. The impact of zoos on the media and awareness of biodiversity and conservation will be assessed to determine if this is a benefit or merely self-serving promotion.

As part of the benefits of zoos, the zoo industry undertakes research, with larger zoos contributing millions of dollars to research. Opponents will hold that all zoo research is self-serving as it is focused on the maintenance of animals in captivity. Yet these days a significant proportion of zoo research is directed to the greater good of environmental science and behavioural ecology more broadly.

In modern times the conservation thrust of zoos has become stronger, with zoos participating in the preservation of species and breeding endangered species for release. Direct contributions of skills and resources into conservation projects further justify the existence of zoos. While there are many benefits from zoos, and zoos are able to make a meaningful contribution to conservation, there may be better ways, with lower costs to individual animals, to achieve the same outcomes.

With changes to the climate and the wide-scale destruction of habitats, numerous species are being pushed to the edge of extinction. In the biblical ark, Noah was able to save every species of animal. Modern efforts at conservation are hampered by the stark reality of the scale of the problems and the sheer number of species that are endangered. The argument on the moral worth of zoos needs to identify the tough choices to be made on which animals should be saved and which can be allowed to go extinct.

Zoos participate in the preservation of species by breeding species that are on the brink of extinction. The choice of the species to save is a difficult decision based on a lack of resources and an inability to save all species. When economics dictates which species to save, big and charismatic animals are able to secure funds and attention despite the cost and inefficiency in saving them, while small and unattractive animals may be allowed to pass without any concern. As will be

discussed further, a compassionate conservation zoo should consider more than economic return in identifying which species to save.

The challenges facing zoos are the exact ones identified in reconciling the interests of individuals and the interests of ecosystems, the challenges of compassionate conservation. As zoos tend to work with individuals the impacts are at an individual level, but the benefits accrue to the species or future generations. Preserving species is similar to the proverbial ark, with zoos acting to hold populations or to maintain populations of an endangered species. The next level of contribution is to breed individuals for release, supplementing wild populations. Finally, zoos are able to bring people into contact with animals in profound ways, leading to changes in policy or actions, aimed to reduce threatening processes.

Preserving species

Zoos are uniquely placed in the conservation world as they have both the skills and resources to preserve individual animals and thus species. In situations where there is a catastrophic failure of the environment through habitat destruction, pest species, disease or disaster, zoos are able to collect the remaining population and to hold it in human care. The immediate threats to survival can be reduced, predators are excluded, diseases treated, and the needs of the individuals provided by humans. Over time, once the threats have passed, if they do, animals can be returned to their native habitat.

Zoos are asked to determine the rightness of acting to preserve a species that is clearly going to disappear in the wild. If zoos fail to act in preserving species, all future options are negated. Zoos have been described as arks, holding remaining representatives in the hope that a future solution will present. However, the costs of preserving a species in human care is very high and uses scarce resources that may be used to help more plentiful species with a better chance of recovery. Faced with the choice between letting a species die out or commencing a breeding program, Colin Tudge answers, 'It is very difficult in this world to do anything that is unequivocally good. But we have to do the best we can. It does seem better to save animals from extinction than to let them die out and if some imposition is necessary, well, so be it.'[38]

No doubt it is more effective to tackle threats directly, in the wild. This necessitates a change in the assessment of environmental impact and the implementation of laws to protect threatened species. Australia has extensive legislation, mostly state-based, that requires that actions should not reduce the status of the wild population of threatened species, yet lack of knowledge and commercial interests often override the interests of animals. The precautionary principle argues that when we are in doubt we should not proceed with a plausibly harmful action, yet time and time again developments proceed with little consideration of the long-term impacts on animals and ecosystems. Moreover, climate change may lead to loss of viable habitat for many species.

Palmer[39] argues that if the threat is by human hand, then we are obligated to protect animals from that threat. Yet practices such as logging continue to erode the long-term options for forest-dwelling species. It is in actions to limit human-caused problems that zoos run into conflicting interests with large business and even government policies.

Due to their skills and expertise, zoo staff often participate in projects to preserve species in their native habitat. Kolbert talks of zoo frog experts working side-by-side with scientists to save frogs in Panama.[40] William Adams recounts how reputable zoos have managed to preserve rhino and oryx.[41] Many conservation projects are headed up by people trained by zoos, often drawn from keeper positions. The combination of practical animal knowledge, scientific training and deep passion for wildlife makes zoo keepers great conservationists.

Zoos are also able to preserve species in captive care. The Tasmanian devil is a clear example of where zoos are rapidly becoming the only hope for a species. The Tasmanian devil is suffering from a deadly, contagious cancer, which manifests as debilitating facial tumours. The tumours are spread through physical contact. Thus it is possible to hold a disease-free population if there is no contact with diseased animals. The tumours were first sighted in the north-eastern corner of Tasmania in 1996; by 2006 they had spread across half of Tasmania and by 2012 tumours had been sighted throughout Tasmania. Once tumours are sighted the population is ravaged, with up to 90% of the population dying. It has proved impossible to quarantine parts of Tasmania to

prevent the spread of the disease, and the teams looking for a cure to the cancer have been unsuccessful to date. The wild population continues to decrease at an alarming rate.[42]

In 2008 it was decided to create an insurance population in zoos within Australia. Twenty-two Australian zoos are taking part in this effort. Zoos are able to hold animals in small groups and through distributing the animals among many facilities the risk of infection is minimised. The cost of the program is significant, yet zoos have raised funds for the project and secured spaces from other more common species.

Recent work on the genetics of the tumour and possible cures are frustrating. The scientists have indicated, based on the disease mutation and spread, that they expect that the Tasmanian devil may be extinct in the wild as soon as 2025. The entire hope for the continuation of this species now rests in captive care and breeding. (See 'The Devil is in the Detail' on p. 218.)

Breeding for release

To release animals into the wild necessitates not only breeding them in captivity, but ensuring they are ready for release and that there is appropriate habitat to release them into. Release is fraught with moral challenges; individuals released will suffer higher mortality and injury rates than if they stayed in captivity, while competition and predation must be managed before release, often at a cost to animals in the wild.

In captive care, the threats and dangers facing individuals in the wild are managed or removed by humans. It has been documented that animals can lose their wild behaviours and even record genetic changes within as little as three generations. While animals are able to relearn wild behaviours, they are exposed to increased risk during a reintroduction phase, where they are adapting to both the risks of wild living and the need to secure new territories.

The null case for captive animals is to remain in captivity without risk and threat of death or harm. We thus can argue that even if the released animals experience threats and harms in line with their wild counterparts, they are disadvantaged from the null position of

remaining in captive care. Others will argue that freedom is worth the risk. Individual animals, like individual humans, have different risk propensity; some released animals do not adapt to their freedom, returning for food and care, while others bolt from the carry case without a backward glance. The goal of recovery plans is not to hold populations in captivity for eternity but to restore wild populations. This necessitates some risk and harm, which is acceptable in line with environmental ethics but challenging for animal welfare.

Current advances in breeding-for-release plans concentrate on developing and retaining the wild characteristics that will give individuals the best chance of survival. Half-way releases, with limited protection and supplementary feed, are being tested. Second and third generation wild-born recovered species quickly revert to wild form. While desirable in threatened species, the return to wild form is problematic in domesticated species which become feral, such as dogs and cats.

Even more challenging is the need to control the threats that drove species to the need for intervention. In many cases, introduced species are the reason for the problem. Introduced species can out-compete local animals, as with rabbits, or are predators against which local species have no defences (cats and foxes). It is estimated that pet cats account for the deaths of millions of songbirds every year in Australia.[43] While responsible pet ownership is promoted, there are places where no pets should be allowed.

The extension of moral consideration to animals amplifies the complexity of this dilemma when we need to kill thousands of pest species to save local species. When value sits in the environment, the needs of the ecosystem override the needs of individuals and the invaders must be destroyed. In controlling threatening species, care should be given to humane methods, but often the scale of eradication needed conspires against humane practices.

Freya Mathews proposes a version of animism or panpsychism that captures ways in which the world (not just nature) contains many kinds of consciousness and sentience. Instead of trying to eliminate feral or exotic plants and animals, and restore environments to some imagined

pristine state, ways should be found, wherever possible, to promote synergies between the newcomers and the older native populations in ways that maintain ecological flows and promote the further unfolding and developing of ecological processes.[44]

Ambassadors – engaging people to change behaviours

Anna Peterson[45] writes of the revolutionary potential of encounters across species lines. Loving an animal violates species boundaries and allows us to believe that animals are worth loving and have value. While such encounters are possible with companion animals and domesticated animals, for the majority of people, zoos are a rare opportunity to fall in love with a wild animal and to get to know it as an individual with personality and value. In this way, well-run zoos can add value to animals and erode the anthropomorphic view of the world.

Once we love animals and understand their habitats, only then do we start to consider limiting our behaviours to allow for theirs. Some theorists balk at this role, desiring that humans should respect animals and regard them with awe but not know them as individuals. They argue that knowing individuals cheapens them and distorts our views.[46] Yet emotion is a good indicator of what we value; hence love of any animal is a positive step in the direction of valuing animals for themselves and creating a culture of affection and respect for wild animals. Once people connect with animals they become motivated to learn and understand more about them.

Well-run modern zoos use the emotional connections that develop between visitors and zoo animals to motivate people to change their behaviours and to act in ways that protect wild animals. 'Wipe for Wildlife' and 'Don't Palm Us Off' (p. 34) are examples of behaviour-change campaigns run by Zoos Victoria.

While behaviour-change campaigns are relatively new to zoos, they afford a significant opportunity to reduce human threats to wildlife and to empower people to take decisions that will have positive outcomes for the wild. As Ronald Sandler[47] says, lots of small changes undertaken by large numbers of people can have significant impact.

Zoos are able to facilitate behaviour change and act as change agents by providing emotive connections to wildlife.

Knowledge and research

A significant weapon in the fight against extinction is knowledge. Many wild animals are cryptic and hard to observe in their natural surroundings. Zoos facilitate the detailed study of animals. Animals can be observed, their physiological needs can be assessed and treatments for diseases developed. In the 200 years of zoo operations, our understanding of animals has been vastly expanded. Well-run zoos have partnerships with universities and contribute resources and opportunities to advance knowledge. It may be argued that our knowledge of animals has advanced to a point that we can no longer justify holding animals to learn, yet a simple scan of the wealth of new findings and knowledge published in journals, based on zoo observations and access to zoo records or animals, reveals that we still have much to learn.

Critically endangered species are usually highly specialised and require unique care for preservation and protection. As our focus expands from mammals to birds, amphibians and reptiles we are confronted by the lack of good data on thousands of species. The Amphibian Ark,[48] established to address the rapid decline in frog species, recognises that each frog species requires its own special care and attention. Of moral consideration is the risk of bringing animals into collections, where little is known about their needs and care. In the early stages of a recovery program there are often high levels of mortality as keepers research the needs of the species.

Zoos also act as early-warning systems. They see injured and diseased animals brought in by the public. New diseases that pose a threat to the wild population are more easily identified and researched in zoos with their access to animals for observation. The first clue to the disease eradicating frogs on a global scale, chytrid fungus, was identified in the National Zoo in Washington, when the captive population of frogs crashed.[49]

If we want to stop extinction we need zoos for their capacity to hold animals, while we learn enough to stop threatening processes or act to halt the threats we already understand. Because the challenge is considerable and resources are limited, methodologies are needed to agree on the species that should receive attention.

Triage

Limited resources and increased need require that conservationists and zoos have to decide on which species to save. Triage may be used to prioritise species for attention. Justice and the equal consideration of equal interests requires that triage uses defensible criteria, such as likelihood of recovery or importance of a species in the balance of the ecosystem, rather than an arbitrary criterion such as cuteness.

The greatest impact we have is on the animals that live closest to us, thus Zoos Victoria owes a particular obligation to the community and animals of Victoria. In addition, the skills of Zoos Victoria staff and its location make Zoos Victoria best placed to deal with local species. Thus in choosing the priority species for intervention, Zoos Victoria commenced with the vision that no Victorian terrestrial vertebrate species would be allowed to go extinct. To determine the species most at risk, Zoos Victoria considered small population size, declining population, restricted distribution and the presence of key threatening processes. The selection criteria identified 16 species (few of which would be called attractive, important or charismatic) which now form the core of the priority *Fighting Extinction* work of Zoos Victoria.[50] It is the belief of Zoos Victoria that the responsibility to care for Victorian species lies with Victorian institutions and that imminent extinction is important. The approach of equal consideration of equal interest, namely in the continuation of the species, means that frogs, stick insects and the state faunal emblem, the Leadbeater possum, all receive the same consideration.

Colin Tudge believes that zoos can probably hold all 2000 terrestrial vertebrates in need of captive breeding, with effort and dedication.[51] My own analysis of the data held in the International Species Information System[52] indicates that this may be true. While large

mammals are challenging, there is no reason why zoos cannot contribute to holding critically endangered smaller animals at sufficient numbers to allow for interventions.

The global zoo collection shows that of the world's most threatened species, zoos are holding and working with 5% of threatened frogs, 46% of threatened reptiles, 18% of threatened birds and 23% of threatened mammals.[53] The resources applied to working with endangered species are significant and show the zoo community's commitment to helping endangered species. In addition, zoos have the potential to increase the number of threatened species held, thus increasing the impact that zoos can make in protecting endangered species. For example, it would be possible for zoos to hold every endangered reptile species, providing a living ark for reptiles.

A strong response to the chytrid fungus in frogs has resulted in an increased commitment to endangered frogs in the global zoo collection, with most zoos starting by prioritising their local frogs. In the five years from 2008 to 2013 frog species in zoos grew by 34% as a direct result of the increased threat to wild frogs. Over the same period, endangered species of frogs in zoos increased by 175%.

A triage approach, based on defensible criteria, facilitates a strong position for conservation zoos and should underpin their work with critically endangered species. A simple statement that a given species is supported by captive breeding is insufficient if the facts and science don't support that the species is assisted by captive programs. Certainly roles exist for ambassador species, which may be drawn from common species, but honesty requires that this be clearly articulated as different from recovery program interventions.

Rescue and rehabilitation

The rescue of individual injured animals attracts criticism from environmentalists in that it contravenes natural processes and consumes resources best used for other purposes. Unlike breeding programs, rescue programs prioritise the welfare of an individual above the health of the population. Most often the animals rescued are of abundant species and it is not unusual for a zoo to be rescuing animals injured in

motor vehicle accidents while the same species is being culled for conservation outcomes.

However, failure by a zoo to respond to animals in clear distress provokes a public outcry. Zoos have promoted their commitment to the welfare of individual animals, and thus it is expected that they will respond to an injured animal. In many cases, injured animals cannot be released to the wild and will spend the rest of their lives in the zoo. Cynics are quick to cry that zoos only rescue animals for the selfish reason of acquisition, but statistics show that most rescued animals are released back to the wild, often within days.

A possible solution to this challenge is to highlight the role that rescue animals can play as ambassadors. There is no doubt that people are impacted by the sight of injured animals, so promoting the individual animal rescue stories is an effective way to educate about destructive human practices and signal changes that are required.

The seals at Melbourne Zoo are all rescue seals, most of them having been entangled in fishing line or plastic pollution. The zoo uses the real stories of these seals to highlight problems with the disposal of fishing line in Port Phillip Bay.[54] Concern for entangled seals is addressed through the provision of over 200 bins along the Victorian coastline, made from recycled plastics. Community groups manage the bins, removing over 20 km of fishing line a year from piers and popular fishing spots. Communities have been motivated to hold clean-up days and a large company has been inspired to fund a marine response unit to treat injured marine mammals. Animals injured by human activity are a powerful motivator for behaviour change.

Challenges for zoos

Zoos operate in a world that sees wildlife and humans in a contest around scarce resources. Ethical dilemmas appear as simple black and white: one side wins at the cost of the other. Further entrenched by the binary nature of science and Darwin's evolutionary theory of survival of the fittest, much of our morality is about the correct course of action in a winner-takes-all game of morality. This approach ignores the significant body of evidence that people, ecosystems and even animals are significantly more cooperative than competitive.

Mary Midgley talks of the falsity of conflict.[55] Many cases are not life or death, and many species are not in competition with humans but rather linked though our common dependence on functioning ecosystems or even symbiotic relationships.

Zoos sit at an interesting intersection between humans and wildlife. This presents the opportunity to change and address the falsity of conflict. By bringing humans into the frame of nature and into a lasting relationship with animals, zoos hope to address the consideration of humans within nature or outside nature. The opportunity to engage, face-to-face, with millions of visitors and to engender a love of wildlife, is a unique strength of zoos.

As entertainment destinations, which are largely self-funded, zoos often have to appeal to popular notions of humanity as standing outside nature. This belief can be further reinforced by barriers and fences that keep people and animals separate. Yet real reform that will deliver the conservation outcomes requires people to see themselves as a part of nature willing to compromise and to limit their consumption of natural resources. Zoos ask people to learn and change, but take care not to antagonise them. All conservation organisations must walk this fine line when confronting the human population explosion. It is politically and socially unacceptable to describe humans as an over-abundant species or recommend the solutions that we promote for other over-abundant animals.

For zoos to adequately meet their welfare obligations, they need to be committed to the animal welfare approach of value residing in an individual. This juxtaposes the environmental ethic which locates value in the ecosystem and allows for certain harms to individuals to protect the integrity and sustainability of the ecosystem. Zoos straddle this divide with some discomfort, and are in constant danger of being accused of hypocrisy for overvaluing individuals in their collections or undervaluing individuals in the wild or recovery efforts. Compassionate conservation offers potential to address the divide between considering animals as individuals and considering them as parts of a greater whole.

Time will tell if zoos are able to adapt and change into compassionate conservation zoos fast enough to make a meaningful contribution and sufficiently to address the deep-seated suspicion that zoos merely want

to profit from animals. As zoos are well placed and often well resourced to make a meaningful contribution, it seems that zoos should be obligated at least to try.

Preserving the integrity, stability and beauty of the biotic community

Environmental ethics is complex in both its scope and its practical implications. Yet the lens of environmental ethics asks us to pause and consider how dramatically humans are impacting on all life on Earth. It challenges humans to turn our attention away from the interests of individual humans to the interests of all living creatures, to strive for a fairer and more just allocation of resources. Such a change will allow for a future that includes the amazing biodiversity and beauty of all creatures. Failure to change is to risk losing many important and worthy biotic communities.

Zoos have many important contributions to add to the conservation cause. Some can be undertaken by other organisations but some, in particular the ability to interact with millions of visitors and the capacity to hold, breed and rehabilitate animals, are unique to zoos. Environmental ethics and consequentialism demand that zoos maximise their contribution to conservation. The day that zoos would no longer be necessary is the day when we have solved the problems of human and animal competition and conflict.

While necessary to save and protect wild animals, zoos occupy an uncomfortable ethical space, spanning the divide of looking after the welfare of individual animals in their care and simultaneously delivering conservation outcomes. As such, zoos are a clear example of the complex ways that animal ethics and environmental ethics challenge and contradict each other. The best hope is that all parties work together in pragmatic ways to deliver both outcomes. It seems reasonable to think that zoos, environmental advocates and animal advocates could work together.

The reality is less optimistic. Zoo critics chop and change between the theories of animal ethics and the challenges of environmental ethics, looking for apparent inconsistency.[56] Zoos are also to blame; few take the time to resolve inconsistency, hoping that their good work in

conservation will be recognised and will outweigh criticism of lack of care for individuals.

The impending crisis for species is an opportunity for zoos. It allows for a stronger narrative on the importance of captive animal collections, if matched by an authentic commitment to conservation outcomes. The claims of animal rights to liberty are reduced in strength by the perils of liberty in increasingly hostile environments; in some cases the right to life would necessitate removing animals from their native habitat. Perhaps white rhinos in Africa, under 24-hour guard to protect them from poachers, should have the right to seek asylum in a zoo or wildlife park that is able to secure their future.

The environmental challenges and direct threats to the survival of species are increasing. I think that Aldo Leopold would be complimentary about the work of modern zoos. While still grappling with challenges and complexity, they are, on balance, dedicating their efforts and resources to preserving the integrity, stability and beauty of the biotic community.

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9
Conclusion

> I think I will always be haunted by the fact that I just missed him; that I just missed the species by a heartbeat.[1]

In a passionate account of the inaction, wrong turns and lack of political will that led to the extinction of the Yangtze River dolphin, Samuel Turvey laments that despite all his field work and efforts campaigning for a magnificent species, he never saw a single individual.

Today we know there are other remarkable animals and plants that are under grave threat. Many people are inspired to save species they have never seen, but millions more need to see and know animals if they are to care enough to act on their behalf. While zoos only play a small role in preventing the extinction of species, zoos can facilitate a profound animal experience, securing the insight that our actions play a part in the destruction of species around us and the desire for change.

In 2013 the Busuttil family travelled to New South Wales and visited the Western Plains Zoo. Their four-year-old son Isaac was delighted with the tigers and asked numerous questions about both the tigers and the threats to their survival, learning that only 300 Sumatran tigers now live in the wild. In the car on the way home, he became quieter and quieter. In response to his father's query on what was on his mind, he said with enormous clarity, 'We can't let animals go extinct. We must do something.' On his return to Victoria, Isaac engaged with the Werribee Open Range Zoo and learned more about threatened species. For his fifth birthday Isaac asked all his friends and family to not buy him presents but rather to give him money so he could help save the critically endangered eastern barred bandicoot. For his sixth birthday Isaac is raising funds for critically endangered frogs.[2]

If we fail to strengthen the ethical foundations of zoos and aquariums, we leave them vulnerable to challenges, risking the loss of their social licence to operate. The work that is needed to avoid further extinctions is significant and requires a strong ethical approach. While zoos have been comforted by the mainstream position that it is acceptable to use animals for human benefit as long as this use is humane,[3] there is scope to strengthen this position by including a broader consideration of the interests of animals in life, liberty and the survival of their species.

There is a risk when people who have the most to lose advocate for a position. As a zoo professional I have a vested interest in the strength of an argument in defence of zoos. My passion for zoos is dwarfed by my passion for animals and my passion for the work that zoos can do. I have witnessed the potential for zoos to inspire and empower kids like Isaac, I have held critically endangered species and I have released endangered species into the wild.

I hope that I have been able to separate my deliberations and my interests. No doubt, from time to time my prejudice in favour of zoos and their potential role in compassionate conservation has surfaced. Yet, I emerge from the experience of developing an ethical defence of zoos with both a greater understanding of the challenges and a greater sense of the changes that zoos need to make to live up to the challenges of ethical operations. Few zoos or aquariums meet the high ethical standards set out in this book, posing the risk that the demand of ethical operations will create more calls for the transformation of zoos. However, if even a few zoos take the opportunity to strengthen their approach, conservation will have gained.

My exploration into the ethics of zoos has taken me down many paths and dead ends. Initially I thought this would be a relatively simple exercise: to determine which ethical framework best meets the goal of evaluating the ethics of zoos and apply the framework to the practical tasks of zoo operations. As a professional zoo director I have a good understanding of the possibilities of well-run modern zoos, and at the start I believed I had a reasonable understanding of the various ethical theories as they apply to animals. Yet this journey has helped

me understand that much of ethical argument is in the detail; the detail of the theory and the detail of the operations.

I have long been frustrated that those who are critical of zoo operations do not stick to a single line of ethical argument; rather, they hop between theories. I now understand that this is because no one theory does all the work of condemning or defending zoo operations. In this, zoos are not unique. Applied ethics requires a layering of ethical theories, taking direction and argument from a variety of different frameworks. The ethical defence of zoos must be nimble and extensive, able to move across theories at the same pace as the challenges.

The five substantial theories I have discussed are the theories most used to challenge zoos and also the theories with the strongest pedigree in considering animals. As such, they raise the substantial issues that must be addressed if one is to defend zoos. While each provides unique challenges, each allows for improvements to zoo operations and provides some of the answers to the challenges.

I believe the best way to see the various ethical theories is not as separate, distinct ideologies, but rather as overlapping and mutually reinforcing frameworks. I have unpacked each theory to enhance the clarity of the main arguments and their impact on zoos, but here in the conclusion my task is to bring them back together. This requires both a sense of layering of ethical theories and the flexibility to draw from numerous approaches to dissect any tricky problem. Despite my desire for clear and consistent outcomes to any argument, I have learned to be cautious of absolute certainty or making pronouncements that seem absolute. The multitude of approaches can result in a position that may seem strong being eroded from a different direction. Perhaps the best answer to most challenges with respect to zoos is 'it depends'.

Fundamentally, zoos are about animals, and as such it is the complex world of animal ethics that I have studied. Perhaps the greatest difficulty arises from using the word 'animal' to describe thousands of species with dramatically different needs and abilities. In time to come we may need to segment ethical discussions based on some grouping of animals. There are some complex, intelligent and social species that may be deeply and profoundly impacted by zoo operations. However,

small, solitary and non-sentient species are arguably impacted in positive ways through the protections that zoos may offer. Finally, for endangered species, where their native habitat has become so degraded or hostile that they cannot survive, zoos may be the only hope for the continuation of the species. This complexity makes it hard to arrive at absolute arguments or principles. What is defensible for butterflies may not be defensible for dolphins.

The value of this work is two-fold: to allow for rigorous debate on the ethics of zoos, and to provide directions for improving the zoos of the future.

To operate a zoo ethically

Over 225 years, permanently sited, public zoos have evolved. They have changed with advances in knowledge and changes in community sentiment. No doubt they will continue to change. Embracing the complexity and challenges of animal ethics will allow zoos to evolve in ways that better serve their animals and their community.

To start at the end, the emergence of compassionate conservation binds together the core requirements for ethical zoo operations. Compassion dictates that the interests of each individual animal should steer the multitude of decisions that zoos take; from day-to-day care, to preservation of a species, to the decision to terminate a life. Zoos offer an opportunity to develop and support the important virtue of compassion. Without compassion the future for many species is bleak. We need a resurgence of compassion for other animals if we are to help save them and learn to share our planet. However, if zoos are to promote and trade in compassion then they must manifest compassion in what they do.

The extinction crisis provides a need for zoos to preserve endangered species and a clear role for zoos in conservation through the breeding, holding and release of endangered species. Yet without the ethical underpinning of compassion, zoos run the risk of saving species but losing their social licence to operate.

Compassion starts with the understanding that animals have experiences and that these experiences can be positive or negative. The

most widely accepted principle in animal ethics is that to cause unnecessary pain and suffering to animals is wrong. I have discussed the nuances of this principle because this is the first and most essential requirement for a zoo whose staff aspire to ethical operations. Such zoos must demonstrate their commitment to and application of positive animal welfare. Advances in animal welfare thinking are rapid and will stretch and challenge an ethically driven zoo. The minimisation of pain and suffering is necessary for ethical operations, but not sufficient. Ethically driven zoos must advance their operations to take account of positive welfare states, providing choice, complexity, pleasure and stimulation to the animals in their care.

Animal rights beyond welfare are challenging to zoos and require clear thinking and commitment to individual animals. The answer again is in the adherence to the principles of compassion. Zoos do not need to kill animals as a core part of their operations; in fact zoos should strive to increase survival and longevity for the animals in their care. As such, a right to life may be incorporated in the policies that dictate the circumstances in which zoo animals are killed. Euthanasia is widely understood as killing to relieve suffering, which can be linked to compassion and grounded on promoting positive welfare states. To kill surplus animals, albeit humanely, only for convenience or to save costs treats the lives of individuals as being of trivial value and should be avoided.

Consequential ethics is popular as its basis is easy to understand. Yet the application to zoos shows the flaws with the approach. While zoos deliver enormous benefits to people, the staff, visitors and community, they do this at the cost of animals held in zoos. Thus, to use the theory to defend zoos on the basis that the benefits outweigh the costs ignores the flaw of costs and benefits accruing to different parties and the challenge that animals are unable to consent to their role in the equation. However, the approach does provide some inputs for thinking about improving the operations of zoos. It is argued that the costs may be negligible for individual animals of some species, and some individual animals actually benefit from captivity while others suffer significant reduction in experience. An ethically driven zoo

should assess its animal collection against the consequences in terms of experiences, and then actively reduce the number of individual animals for which life in captivity is a negative experience while increasing the animals that are unaffected or actually benefit. This is a complex undertaking that should avoid generalisations, considering the situation and interests of each individual.

The impact of virtue ethics on zoos goes well beyond compassion. Ethically driven zoos should be careful to craft the messages and activities of the zoo to reflect the great virtues in a consistent and considered way. Zoos are a role model within a society, with influence on school programs and family values. This is a responsibility that an ethically driven zoo should understand and embrace.

With their focus on individual animals, zoos are in a good position to advance compassionate conservation, addressing the needs of species and individuals. Zoos make a significant contribution to conservation through support of field projects, engaging with communities and empowering visitors to change their behaviours. Zoos employ both field scientists and social scientists, providing the opportunity to amplify compassionate conservation.

A practical example – taking dolphins from the wild

The value of my work is limited if it cannot answer some of the hard ethical questions the zoo and aquarium community faces today. So, to test the rigour of my approach I have chosen a practice that is currently under debate: the taking of live dolphins from the oceans to supplement the captive population.

To follow the ethical layers that I propose, we need to start with the principle of no unnecessary pain and suffering. There is no necessity for the dolphins in their removal from the wild. Dolphins are not over-abundant to an extent that may necessitate reducing animal numbers to maintain a healthy population; their wide distribution and mobility within the ocean allows for populations to move and limits their destruction of a particular territory. The dolphin species most commonly held and thus most regularly procured from the wild is the common bottle-nosed dolphin, which is listed as 'least concern' by the IUCN.[4] Thus there is no conservation necessity to remove dolphins

from the wild for preservation or recovery of the species. Finally, the necessity to capture wild dolphins may be based on the inability to secure a sustainable breeding population in captivity, which raises questions about the suitability of holding animals that are not maintained in circumstances that promote breeding in captivity. Well-run dolphin facilities are able to hold and breed dolphins successfully, and while breeding is no proxy for good welfare, lack of breeding is an indication that the individuals are not in good welfare states.

Two methods are used to capture healthy wild dolphins. In both cases, the pod of dolphins is chased by boats, either until individuals are separated from the group or until the whole group is chased into a cove that can be sealed with nets.[5] In both cases young female dolphins are separated from their mothers (males are generally not desirable as they fight and are aggressive). In both cases there is evidence of stress and anxiety in the animals that are 'driven' by the boats.[6] Dolphins care for their young and develop strong maternal bonds. Thus, on separation there is evidence of mothers trying to become reunited with their offspring, displaying maternal distress. In the cases of drive capture, the practice does not meet the requirements of the humane principle.

In the cases where dolphins are entangled, injured or ill, their removal from the wild for treatment may save their life. It is arguable that in these cases the removal of the individual from the wild may well be necessary and may well reduce pain and suffering. Such cases are arguably defensible.

What then of the right to life and liberty? For dolphins, the removal from the wild results in a significantly higher chance of mortality. It is estimated that 90% of wild-caught dolphins in Japan die within three years of capture. Thus there is no claim that the dolphins removed from the wild have an improvement in survival.

Loss of liberty is apparently challenging for dolphins. The behaviour of wild dolphins once contained includes repeated attempts to escape confinement. The live capture focuses on young animals, as animals reared to adulthood in the wild do not fare well in captivity. The practice of taking young animals seems to indicate that the loss of liberty does have an impact on the individuals. Thus, considering the long-term holding of dolphins in captivity, it seems that in the practice

of a live take we see evidence of dolphins having an aversion to confinement, beyond their immediate welfare.[7]

Consequentialism will allow for a calculation of the benefits to thousands of visitors to dolphin shows. Children will be awed by the antics of the dolphins, yet to condone cruel practice because others will experience pleasure is perverse. Further, there is no evidence that dolphin shows in any way promote the health and conservation of wild dolphins. On the contrary, two of the biggest threats to dolphins are their capture for shows and their slaughter for food. Without the live take it is believed that the slaughter will no longer be feasible and the entire industry will fold.

Finally, the virtue of compassion provides a challenge to those who choose to take dolphins from the ocean. To undertake an extraction that involves the herding of extremely distressed animals, the separation of bonded mothers and offspring and the high level of injury and mortality arguably requires some level of suspension of compassion. Virtue ethics asks, 'what would a virtuous person do?' I think we can answer that a compassionate virtuous person would condemn the drive capture of wild dolphins.

In assessing how the chosen range of ethical frameworks would approach the concept of drive capture of wild dolphins, I propose that it cannot be justified, and any ethically driven zoo or aquarium would reject the practice. The combination of theories provides a strong moral condemnation of wild dolphin capture.

Wider implications

Zoos and aquariums fear that the above line of argument may hold for all animals and prevent all live capture. I would argue that each case should be tested on its merits. Wild capture is necessary where a species is severely compromised in the wild and captive breeding and recovery are indicated. Wild capture does not produce pain and suffering for all species. In the case of birds, eggs may be removed from the wild without any concern about suffering to the egg and possibly only mild distress to the adult, no worse than the impact of the removal of the egg by a snake or other animal. Birds typically lay eggs to replace lost eggs fairly quickly. Removing caterpillars from the wild does not harm the caterpillar, if

done gently, and certainly does not harm the adult that laid the eggs and then departed, leaving the eggs and offspring to their own fate.

In some cases where an animal is sick or injured, wild capture is necessary and desirable to reduce pain and suffering. Finally, for some species removal from the wild enhances quality of life and longevity. Caterpillars form a substantial part of the diets of birds and insects, and thus the removal of a caterpillar from the wild actually enhances its scope for survival. This is also true for species such as snakes, frogs and turtles where head-start programs hold the youngsters for the first year of their lives, thus improving their chances of survival on release.

In testing the ethical approach I have shown that, at least on first pass, the capture of dolphins by drive hunt is not ethically defensible and that this conclusion does not bind zoos and aquariums to reject the capture of any wild animals.

Future work

I will continue to pursue the role and requirements for zoos to participate in compassionate conservation. I believe that the route of considering individuals and their wellbeing is essential for zoos. The ends of conservation cannot justify the poor treatment of individual animals. As compassionate conservation is an emerging ethical framework, I anticipate that there is much to be debated on both the foundations of the framework and its implications, for both zoos and all other conservation organisations that strive to halt the loss of species.

Virtue ethics is another area that lends itself to critical examination at zoos. Much of the way that zoos define and position themselves could benefit from a discussion of human virtues and how animals are represented. While it is an important part of the defence of zoos, virtue ethics demands a better consideration of all the artefacts of culture displayed and advanced within zoos. For example, zoos often promote their animals as wild, playing on a representation of danger and excitement. When the individuals have been born in captivity and are conditioned to living with people, there is an element of dishonesty in this representation. When zoos decide to trade in the fiction that they display wild animals, they run the risk that the public may believe that

their other claims, such as compassion or contribution to conservation, are equally fictitious.

Finally, I believe it is time for a rigorous debate within the zoo and aquarium community on what animals it is plausible to hold and breed in positive welfare states. Zoos should be aware that animals that experience a severely diminished experience during captivity should only be held when it is necessary for the welfare of an individual or to preserve a species. Zoos should not hold animals that are compromised in captivity to the extent that they do not breed sufficient numbers to be sustainable, animals that require ongoing supplementation from the wild, animals that endure pain and suffering in capture, and animals that experience ongoing negative welfare states in captivity.

Final thoughts

It is possible for zoos to be operated ethically. Yet it is not easy. The rigours of thinking and acting ethically require an ongoing examination of beliefs and activities to steer a course through the challenges of animal ethics. The route is compounded by the changing nature of animal ethics and our increasing understanding of the nature, complexity and capabilities of animals. Social media are changing the ways that information and outrage spread, creating an environment of ever-changing social norms.

Unfortunately the bulk of zoos in existence today still fall short of meeting the requirements of ethical operations. At best 3% of zoos are striving to meet ethical standards, with perhaps only a handful meeting all the requirements. But there is hope. The new generation of zoo directors and zoo keepers have been schooled at a time when we understand that animals matter, they care deeply about animals and they are passionate about conservation. They will be the custodians of compassionate conservation and will drive the community to improve operations to meet the rigour of ethical frameworks. I have no doubt that the well-run zoos of 30 years in the future will be markedly different from the well-run zoos of today. Sadly, I think that bad zoos may remain unchanged, shackled by ignorance, lack of funds and lack of care.

Armed with compassion and bravery, ethical zoos and aquariums will address concerns, invest in animal welfare and wholeheartedly apply themselves to preserving the amazing animals that share our planet. It is in the gasp when a child first sees a tiger or the chuckle that follows the antics of meerkats that we find our hope, in compassion we find our virtue, and in preventing extinction that we find our cause.

I leave the last words to Bradley Trevor Greive.

> Anyone who has
> seen a sunrise,
> climbed a tree,
> smelled a rose,
> held a kitten or
> listened to a whale's
> haunting love song knows,
> deep in their bones,
> just how amazing
> this planet really is.
>
> To preserve our home and
> the priceless creatures
> that dwell within it
> you need only see
> the world as it is
> and have a vision
> of how it could be.
>
> Then hold fast to this vision,
> let it guide your steps,
> your voice and your heart.
>
> If you can do that then there will be hope,
> there will be beauty,
> there will be joy,
> there will be life on earth.
>
> (and you will never have to live in a world without pandas)[8]

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Wicked problems

We like to think that all problems have an easy or right answer. We hope that there is a logical thought process that will allow us to say with all certainty whether an action is right or wrong. In many cases we can do this.

Working with animals often poses difficult ethical decisions. The number of ethical theories discussed in this book is a clue that answers are seldom simple. After all, we cannot even agree the ground rules. Adding to the difficulty is that not all animals are the same; we cannot possibly hope that one answer will be correct for both the gorilla and bugs. Yet we have to try. The best way is to practise, to exercise our ethical thinking and to debate positions with like- and unlike-minded people.

Wicked problems don't have simple answers. In many cases all the answers seem wrong. Whatever is done there is a negative outcome, and at best we can minimise the negative outcomes. Often the answer starts with 'it all depends …'

This section allows you to apply your ethical thinking and debate some real zoo situations. I don't provide the answers. Applied ethics challenges you to test your own beliefs and the strength of your logical arguments.

What would you do if you ran the zoo?

The Child or the Gorilla?

Cincinnati Zoo 2016

On a sunny day in May 2016 a three-year-old boy moved past the safety barrier and climbed over the containment wall, falling 3–4 metres into the gorilla enclosure at the Cincinnati Zoo. Attracted by the noise and activity, the male gorilla, Harambe, grabbed the boy and dragged him around the enclosure.

After attempting, unsuccessfully, to recall the gorilla into the night dens and to separate him from the child, the zoo's Dangerous Animal Response Team deemed the situation 'life-threatening' and shot Harambe. The child was treated for serious injuries that were not considered to be life-threatening.

Western lowland gorillas are one of the four gorilla subspecies. According to the World Wildlife Foundation, populations of the critically endangered animal are hard to estimate due to the dense, remote rainforests where they make their home, but experts say between 175 000 to 225 000 could live in mostly in Congo, but also in Angola, Cameroon, Central African Republic, Equatorial Guinea and Gabon.

This incident sparked public interest in the death of a zoo animal of a critically endangered species. Discussions centred on the justification for shooting the gorilla and speculation on whether the incident could have been avoided by the behaviour of the parents or the facilities at the zoo.

Ethical considerations:

1. **How do we value lives?** Our laws and practices value human life above all others. Can you develop a legal defence for the decision to not shoot the gorilla if the child died? What about the choice between two humans? If the gorilla had been a dangerous kidnapper would your response be different? We place value on the innocence of the gorilla; he is as much a victim as the child.
2. **Does rarity matter?** Consider your reaction if this had been a common animal such as a large dangerous dog rather than an

endangered species. What role does the familiarity and name of the gorilla play?

3. **Is a humane death harmful to the animal?** It is held by many that a humane death is acceptable, since the animal does not suffer. But we believe that living is a good thing, and premature death robs an individual of their opportunity to experience life and all the positive experiences that entails. Harambe has lost the opportunities of fatherhood and the enjoyment of living a long life.

Killing Surplus Animals

Copenhagen Zoo 2014

In January 2014 the Copenhagen Zoo killed a healthy young male giraffe named Marius, performed a dissection in front of a paying audience and fed his remains to their lions. A British journalist documented the action and a media storm followed. The death was delivered humanely and the use of the body after death for education and for feeding the lions is consistent with not wasting the death of the young giraffe.

One of the oft-stated goals of zoos is to hold insurance populations of animals, which may be used at a future time to supplement wild populations. Maintaining insurance populations requires regular breeding, with the foreseeable and undesirable outcome of producing more animals than facilities can hold.

For many animals the production of a young animal is an important part of their welfare, and a life well lived includes a life with offspring. In some species failure to breed can lead to the development of health issues, or to the inability to breed in the future. In the wild a large proportion of animals die on dispersal, so killing young animals as they reach puberty follows a natural cycle.

However, there are alternatives to breeding animals you cannot house, including contraception, the separation of males and females, and increasing the interval between breeding events.

Zoos also use animals to develop emotional bonds, naming them and developing relationships between the animal and the visiting public. It is believed that creating a compassionate and caring community is part of the educational and conservation-focused activities of zoos. Having created the emotional connection with an individual animal, it may be inconsistent to treat the animal as merely a vessel for genetics or a source of meat.

Ethical considerations:

1. **Is a humane death harmful to the animal?** It is held by many that a humane death is acceptable, since the animal does not

suffer. Marius was killed quickly and cleanly. But we believe that living is a good thing, and premature death robs an individual of their opportunity to experience life and all the positive experiences that entails.

2. **Does one bad day matter?** Last week I was at a dinner where the celebrity chef talked about the beef steak on the menu. He talked of how the cows had great lives, on natural pasture, in a big social group, and then had 'one bad day.' The audience laughed, comfortable that their dinner had been well looked after until it was killed. For many people a clean death, quick, humane is all it takes to make the killing of an animal ethical and their dinner guilt-free. How is Marius different from a cow? He also had a good life and one bad day.

3. **Should zoos anthropomorphise animals?** Zoos give animals names, ascribe behaviours and emotions to animals and talk of them in human terms. While this practice builds emotional bonds, it may cloud the real relationships between people and animals. If Marius the giraffe had been an unnamed deer, would the response be different?

How Much for the Lion?

Johannesburg Zoo 2000

While I was working at the Johannesburg Zoo we were approached by a big game hunter who had the idea to shoot a lion in the zoo. Our male lion was old and undergoing renal failure. The prognosis was poor and the veterinarians had decided to kill the old lion. The zoo declined the offer and the veterinarians euthanised the lion.

From the lion's point of view, the two options were the same. The vets would shoot him with a dart that would render him unconscious then he would be terminated, or the hunter would shoot him with a clean shot. Either way he would be dead. Both deaths would be quick and the lion would not suffer.

The lion had led a long and arguably pleasant life. He had bred and enjoyed the opportunity for playing with his cubs. He had lived longer than he would have in the wild, with a steady source of food and protection from competition, disease and pests. As he aged his quality of life was diminished and his death would be a release from the pain he was suffering.

The hunter proposed to pay handsomely for the opportunity and to remove the 'trophy' of the body of the lion. The money could have been used to support lion conservation in the wild or to improve the zoo facilities for the remaining lions, including his offspring.

In South Africa, lions are routinely bred for hunting operations. Big game hunters consider a lion as one of their trophy kills. The concept of 'canned hunting' allows hunters to safely kill a lion that has been bred for that purpose and is contained in a way that minimises both the effort and the risk of hunting a truly wild animal. The practice is lucrative but attracts negative sentiment.

In July 2015 a male lion was shot as a trophy in Zimbabwe. The hunter had a valid permit and was part of an organised hunting party. The killing attracted international media attention, compounded by reports that the lion was a well-known lion, Cecil, who had strayed from a protected area.

Ethical considerations:

1. **Does the price matter?** A lot of money can do a lot of good. When considering the consequences of a decision, how can we weigh up the monetary reward against the loss of a life? For the lion it seems more challenging than for cows. Some argue that is because cows are bred specifically to be killed, but this is the same for 'canned lions'. Hunting concessions are a large generator of funds to protect parks and wild areas.
2. **Does the motivation for killing impact on the rightness of killing?** The veterinarians would have been saddened by the lion's death, while the hunter would have celebrated the death. Does this matter? The death of Cecil to a trophy hunter attracted significant negative attention, while land clearing for farming has a greater impact on the survival of lions.

The Devil is in the Detail

Healesville Sanctuary 2016

Tasmanian devils are suffering from a facial tumour that has killed over 80% of the wild population and results in a slow painful death for infected animals. In 2008 Australian zoos established a captive breeding program designed to hold a genetically sustainable population of disease-free devils.

In 2016, faced with the loss of devils in critical habitats, the Save the Devil Program proposes to return devils to the wild in areas where facial tumour disease is still active. The devils play an important role in the landscape as the top-order predator, suppressing other predators. This is important in limiting the potential spread of invasive cats and foxes, and has protected small animals from the impact of these predators. With the loss of devils in the landscape, there is a fear that the impact of other predators will increase to the detriment of local species.

Releasing devils into an area where facial tumour disease is still active is likely to result in ~80% of the released devils catching the disease and dying a painful death. In captivity they are secure and well quarantined from the disease.

Ethical considerations:

1. **A long life in captivity or a short life in the wild?** Are the devils better off in the wild, even at the risk of a painful death? Some argue that a life in captivity is a life diminished and thus even a few months of life in the wild is worth the risk. How would you approach this question for yourself? Would you make the trade-off of a long life in poverty against a short life, say less than a year, of wealth?
2. **Can we sacrifice a few for the greater good?** Devils play an important role in the ecosystem by limiting the potential inflow of cats and foxes, which have a more detrimental impact on native species. Is the possible risk of a painful death for the released devils permissible against a greater ecosystem benefit?

To Touch or Not to Touch?

Taman Safari Indonesia 2016

Many zoos have animal interaction programs. It is widely held that close connections are important to establish emotional bonds between visitors and animals. Animal encounters range from holding insects to petting large animals such as tigers and elephants. World Animal Protection campaigns against the use of animals in entertainment, and in particular asks tourists to avoid facilities that allow contact with large animals.

In 2016 a video clip circulated showing a very drowsy young lion being woken by a keeper to pose for photographs at Taman Safari Park in Bogor. Animal campaigners accused the park of exploiting the animal and drugging the lion. The park denied any drugging of the lion, drawing attention to the fact that lions sleep for large parts of the day and the lion was simply drowsy. Taman Safari rigorously defend their practice, calling on the educational role of providing connections between visitors and animals. The lion, tigers and orang-utans used in photo experiences have been hand-raised and are comfortable around people. The park explains that the youngsters have been rejected by their parents; thus hand-rearing allows survival and an opportunity to experience and pat these animals.

At the other end of the contact spectrum, the Detroit Zoo does not allow any visitor to have contact with any zoo animals. Even the domestic species are hands-off. The Detroit Zoo is a leader in animal care and wellbeing and this position is aligned with their philosophy that people should not think of wild animals as pets. The Detroit Zoo is often called on to rescue inappropriate pets; for example, in 1992 a lioness was rescued from a suspected crack house. It seems a lion is better than a guard dog.

At Zoos Victoria we encourage contact with appropriate animals under controlled conditions. Research tests the welfare of the individual animal and the aptitude of the animal to the experience. Many of the critically endangered species that Zoos Victoria is trying to save are

small and cryptic. Close engagement and possibly contact are important in creating the connections that will drive understanding and ultimately actions on behalf of these species.

Ethical considerations:

1. **Do you think that contact with animals promotes a desire to own them as pets?** Some animals are suitable as pets and others are not. When we think of domesticated animals, it has taken thousands of years of selective breeding to produce the docile, human-focused animals that we value today. The illegal pet trade removes thousands of animals from the wild and is a threat to many species. Would you want to own a monkey as a pet?
2. **Do we need to touch to feel connected?** Touch is only one of our senses. Why do we value the touching and controlling of animals? In the wild we are unable to get close to wild animals. Zoos and aquariums rely on close connections with animals as part of their attraction. At a zoo we are able to see animals up close and feel really connected. When does it go too far?
3. **Safe interactions with dangerous animals.** Wild animals are naturally distrustful and fearful of humans. To ensure that interactions are safe for both the visitors and the animals requires some intervention – training, conditioning, removal of teeth, claws and fangs or even chemical control. How comfortable would you be with these methods of restraint?

When to Say Goodbye?

Melbourne Zoo 2016

In 2016 an elephant calf was born at Melbourne Zoo with carpal flexion, a problem that is fairly common in horses but not previously seen in elephants. The treatment is simple in foals but was complicated in an elephant calf weighing 100 kg. The calf was cared for by an impressive veterinary team and round-the-clock keeping staff. The treatment for the legs, setting them in plaster, required removing the calf from her mother, although the decision was made to keep them in adjoining enclosures and to allow contact to maintain the bond and reduce anxiety in the mother. Feeding of the calf was challenging and led to the need to supplement milk with intravenous nutrition.

The decision on continuing to treat and care for the elephant calf was revisited on several occasions, considering her wellbeing, levels of pain and the long-term prognosis for her to rejoin the group and to lead a normal elephant life. While impeding her movement and possible long-term success, the challenges with her legs were not life-threatening. However, the management team confronted the challenge of what is the value of an elephant that cannot walk well: would visitors still be attracted to an animal that limps or would that undermine trust in the organisation?

The calf experienced several infections and setbacks. Each incident was examined against the criteria of was she in pain, did she suffer and was our action in keeping her alive defendable.

The hardest question is when to stop. As long as the calf was vital and active it seemed right to continue with treatment and care.

Ultimately the calf caught an infection that could not be treated. Her deterioration was rapid. A full body scan, under anaesthetic, showed that the calf had no prospect of recovery. The anaesthetic was maintained, while she was returned to the zoo, placed near her mother and then the euthanasia drug was administered. The adult elephants were provided access to the stall with her little body. They spent the

night with her, gently touching the calf as she cooled. In the morning they left the body.

Ethical considerations:

1. **Why should a single animal matter?** Should the zoo have terminated the life of the calf once it was found to be disabled?
2. **What considerations would you take into account in treating a sick animal?** Thinking about a loved pet or animal you find injured at the side of the road, what duty of care do you feel to the animal? Is your duty to your pet greater? If the cost for treatment of the injury is going to be really high, would you allow that cost to influence your decision? Would the age of the animal make a difference – would you favour treatment for young or old animals?
3. **When do you think it is acceptable to kill an animal?** Every year thousands of pets are abandoned at shelters. Many of these animals are killed as they have no prospect of finding a new owner. Reasons for abandoning a pet can vary from cost to moving to simple boredom. We do not think of humans in this way.

Should 'Cute' Count?

Lord Howe Island

Zoos and aquariums tend to hold animals that are aesthetically interesting or considered 'pretty'. As humans we are attracted to the animals that are most like us – the great apes, followed by smart mammals. This prejudice carries forward into the conservation programs and donations attracted by various species.

Research and conservation programs also follow the mammals. It is hard to get politicians and donors interested in the slimy and scaly little animals that make up most biodiversity.

Pest species are a raft of species that dare to challenge human dominance of the planet. They eat our crops, invade our houses and even threaten our health. For these species we are unforgiving and deal out brutal retaliation. Many species get caught in the cross-fire; they are not really a risk, but we just don't like having them around.

Lord Howe stick insects are large black insects. Driven to the brink of extinction, they survive through the work of Zoos Victoria in holding and breeding them. To successfully return them to the wild will require the eradication of rats on their home of Lord Howe Island. The government of New South Wales has provided funding for the rat eradication. The community have voted with a narrow majority to proceed with the eradication. We look forward to the day that this brave community can welcome back the 'land lobster'.

Ethical considerations:

1. **What characteristics should be morally considerable?** While Peter Singer called us on our obsession with all things human and the double standards applied between humans and animals, there is another level of prejudice towards animals we find attractive. What species would you support – would you donate to a project supporting venomous snakes or burrowing beetles?
2. **Should pest species have rights?** Worse than just being unattractive are the species that directly threaten human health or

compete with humans for resources. Try mounting an argument for the protection of cockroaches or rats.

3. **Should endangered insects have more rights than pest mammals?** The successful reintroduction of Lord Howe stick insects requires the eradication of invasive rats. How would you argue to kill a mammal to save an insect?

More than the Parts

Tiger Temple

When zoos and animal sanctuaries are not profitable there is a temptation to sell off animals or their body parts to lucrative markets. If a park is able to breed animals they can quickly have a surplus of animals, as many animals are not hard to breed.

Traditional medicine has made use of the characteristics of animals to promote healing or the characteristics that people desire. In Johannesburg Zoo a staff member was selling elephant dung as a traditional medication, alleging that when consumed through a tea infusion the strength of the elephant may pass to the consumer.

It is easy to dismiss a claim such as this, but thousands of animals are bred and killed for their alleged, and unproven, medicinal properties. The current increase in killing of rhinoceros is driven by a lucrative trade in rhinoceros horn to meet the demand for the unproven medicinal properties of rhinoceros horn.

In 2016 the Tiger Temple in Thailand came under investigation as bodies and tiger parts were found during a raid on the premises. The police commenced an investigation to ascertain if the tigers had died naturally and the parts were just a side business, or if the monks were in some way involved in animal trafficking.

Ethical considerations:

1. **If an animal is dead is it acceptable to sell the parts?** Once an animal has died the zoo has to dispose of the body. It may be argued that the body parts should be used to support operations.
2. **How about feeding prey animals to predators?** It may be considered wasteful to simply burn or bury the body of a dead animal when it could be fed to a predator. Feeding the whole carcass adds to the welfare and the enrichment of the predator.
3. **What revenue streams are compatible with zoo animals?** Zoos and aquariums are expensive to run due to the costs of

animal food, staffing and enclosures. Many zoos run commercial activities, from photographs to food outlets and gift shops. Where would you draw the line on commercial operations?

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